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# Military Review

U. S. Army Command and General Staff College, Fort Leavenworth, Kansas

*In This Issue*

- ◆ Reflections on the Invasion
- ◆ Three or Five Combat Elements?

February  
61

# UNITED STATES ARMY COMMAND AND GENERAL STAFF COLLEGE

## FORT LEAVENWORTH, KANSAS



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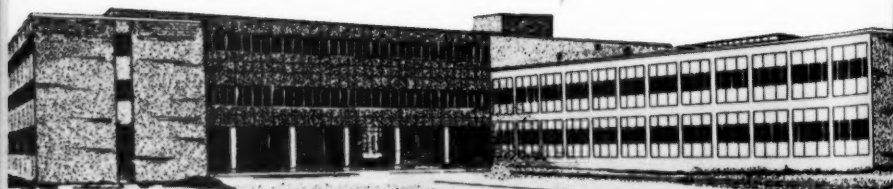
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The first of two articles by  
General Leo Freiherr Geyr  
von Schweppenburg\*

## REFLECTIONS ON THE INVASION



A paragraph from one of General Geyr's letters best explains his intention and the finished form of this article. "The following purposely is not a staff-type study. Rather, a variety of conversations, letters, personal evaluations, and excerpts from personal memoranda are presented from which the reader may form his own judgment."

The crux of his differences in opinion with General Rommel, preceding the Allied invasion of the Continent, stemmed from Rommel's decision to use his armor far forward, that is, directly on the coast and not in depth. General von Rundstedt, nominal Commander in Chief West, shared General Geyr's opinion that the armor should be in mobile readiness for use at the critical point; Rommel received Hitler's half-hearted backing in the matter. It was a

case of armor concepts making strange tactical bedfellows.

Dual experience lends competence to the author for writing this article. He was the principal advisor for armor, particularly in training matters, to Field Marshal von Rundstedt and later he was Commander in Chief of Panzer Group West. Following the war he was chief of the "Normandy Group" in the Foreign Military Studies Section of the United States Army Historical Division. —Editor.

ALMOST 17 years have passed since the invasion. As with almost any past event, a mist obscures a realistic retracing of history and its prominent personalities. The number of witnesses dwindles. The quality and reliability of testimony varies. Human failings such as rivalry, personal resentment, and honest differences in

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technical opinions play their part. The greater the span in time the more difficult becomes the task of establishing a picture of the scene of military happenings without anger or partiality.

Chester Wilmot's book, *The Struggle for Europe*, is a case in point. Although I consider his work to be one of the best on the subject, it reflects



General von Geyr talks with a Japanese liaison officer in Paris. (All photos from General von Geyr's collection.)

the difficulties that beset the earnest researcher. When I told him that despite the quality of the account it contains errors and understandable mistakes, he remonstrated, "... but I have been able to use the telephone log and the war diary of the German 7th Army as reference."

Whereupon I pointed out to him, "It

*General Leo Freiherr Geyr von Schweppenburg, Retired, is a German citizen and former member of the German Army, presently residing in Munich, Germany.*

is difficult for you to place yourself into the abnormal situation of the German commanders. Only a candidate for suicide or a fool would have held significant conversations from the battlefield over a French trunk-line. It would have been tapped by the resistance movement and the Gestapo."

As to the war diary, if it had been mine and my assistant in writing it would have wanted to talk about it in the heat of the battle or upon my return from the battle area, I would surely have told him, "Do you think I have time for this? Put down what you want. Get out of here. For the time being I do not want to see you with this again."

Later, during the same meeting with Wilmot, the conversation turned to personalities. Wilmot asked, "In one of his prefaces my friend Liddell Hart wrote that Rommel had been a man like Caesar. Was he that?"<sup>1</sup>

In my judgment, "No, certainly not." I related to Wilmot an incident that illuminated one aspect of Rommel's complex nature. The scene was the Reich Chancellery on 15 February 1940. We, the newly appointed commanding generals, were waiting for Hitler for the purpose of reporting to him as ordered. Next to me stood the Generals von Manstein, Stumme, and Schmid and on the left stood Rommel who, up until then, had commanded Hitler's escort unit. He had just been named commander of the 7th Panzer Division.

Rommel turned to Schmid, "General, how does one lead a Panzer division?"

Schmid answered, very wisely,

<sup>1</sup> In B. H. Liddell Hart's Introduction to *The Rommel Papers* he speaks actually of the writing of great commanders and in so doing compares Napoleon and Caesar.

"There are always two decisions possible. The more daring is always the better one."

Rommel, as it turned out, followed this advice in Africa, but in Normandy he no longer did. It is the general opinion by qualified observers that he was physically unfit in Normandy. Before the invasion, he himself spoke of the wearing out of a military leader in war to his staff. Apparently, he overlooked that he could no longer be as fresh as at the start of his activity in Africa.

An excerpt from a briefing I conducted for Field Marshal von Rundstedt at his headquarters at St.-Germain, while I was in charge of training armor troops in the West, throws additional light on the situation prior to the invasion as it relates to Rommel's subsequent concept of the defense.

General von Geyr: "Field Marshal, do you command that I train the Panzer divisions for coastal fighting or for mobile warfare? I would propose the latter."

Von Rundstedt: "Agreed. Train for mobile warfare."

This was *before* Rommel's arrival in the West.

To be sure, Rommel alone was not responsible for the outcome of the invasion. It was only one phase of World War II, although a significant one. In the fall of 1943 Hitler thought that it would decide the outcome of the war. This view was one of his self-deceptions because Stalingrad, the capitulation in North Africa, Allied successes in the Atlantic, and the air battle over the German homeland already had ordained Germany's defeat.

By June 1944 Hitler had long since eliminated the best military minds

and characters from the high command; men such as Field Marshal von Leeb, the spiritually and personally outstanding former Chief of the General Staff Ludwig Beck, the reliable Halder, and many others.

Göring's words had come true. He had told the assembled leaders of the armed forces in 1938, "Fifty percent of the worth of a high military leader



Colonel General Johannes Blaskowitz, Commander of Germany Army Group G (left), discusses the invasion with Field Marshal Erwin Rommel (center) and Field Marshal von Rundstedt (right)

is his attitude toward national socialism and the Party."

When these strange dogmas are put into practice, no war against almost the rest of the world can be waged successfully.

## Foundations of the German Command

By 1944 the Hitler system had almost completely destroyed the spiritual as well as the ethical foundations of the German command technique. In the old days the officers' corps stood

for strength of character, obedience to superiors, and a sense of reality in the evaluation of situations. It habitually sought success on the battlefield in the attack and to assign missions to lower echelons, reserving to subordinate commanders the *how* of carrying out their missions. But now only the staff of the 7th Army<sup>2</sup> still led according to the old principles.

Conflicting orders from many headquarters confused the German forces from the first days of the invasion. A comparison of orders received on 8 June reveals that three superior command levels—Berchtesgaden, St.-Germain, and La Roche Guyon—had made three different demands. The far-reaching damage to the traditional command principles as well as the organization, or rather disorganization, of the command in the West precluded the likelihood of a successful defense.

Coupled with this erosion of principles was a basic lack of appreciation of modern strategy that shook the foundations of the German command. The German Army was definitely a continental army and in the last phases of the war was deployed on traditional fronts against France and Poland-Russia. Apart from individual personalities, such as the former Chiefs of the General Staff Beck and Adam, General Marcks, and a few others, the general staff views on the consequences of a fight against an enemy whose air and naval power outweighed Germany's had not prevailed.

The significance of the air and naval factors had impressed themselves upon me during an extended period I had served as acting air attaché in London. In August 1943 I

tried to acquaint Rundstedt with the danger of the vigorous thinking of a man such as Air Marshal Slessor.<sup>3</sup> At that time I sent Rundstedt a copy of a report I had prepared in September 1937 while on duty in London. It stated, in part:

*The true dimensions of the dangers connected with having Britain for an enemy first become clear when the weights of time, space, materiel, and national psychology<sup>4</sup> are laid on the scales to decide the outcome of war. . . .*

*The question of why the undeniably talented French have lost so many wars in the past two centuries while the British have lost only one should provoke thought.*

*A Panzer army within the framework of Slessor's concepts of the art of air warfare is, in itself, nothing new or alarming. But when absolute command of the air has been won, when a constantly reinforced air army lends its powerful and increasing support to the ground effort, and when, above all, naval superiority makes possible a landing at any desired location, then the picture is changed. The educated soldier will then recall how the 'cancer' of Wellington's army in Spain could achieve its impact due to British naval supremacy, which in turn brought the time factor into play.*

My work was returned to me with the following nebulous remark scribbled on the margin by the Field Marshal's chief of staff.

<sup>3</sup> Sir John Slessor, Marshal of the Royal Air Force, acknowledged as one of the world's outstanding military strategists, was a wing commander when he wrote *Air Power and Armies*, published in 1936. His book is based on a series of lectures delivered at the Staff College at Camberley between 1931 and 1934, in which he voiced the new power of air and its effect on the problems of land warfare.

<sup>4</sup> The well-known British "bulldog tenacity," perhaps.

<sup>2</sup> Commanded by General Friedrich Dollman who died of a heart attack on 28 June 1944.

*The Commander in Chief has read the treatise with interest and thanks you for sending it. Mr. Slessor is a prophet of his trade!*

This warning did not produce any noticeable effect.

## Background for Basic Decisions

Two misconceptions influenced Hitler's amateurish and confused strategic thinking. The first was the fortress complex that was expressed in the exaggeration of the value of the Atlantic Wall. Even earlier he had had violent differences with older soldiers of strong character on the operational worth of the West Wall.

The second was the fraud of Dieppe. A leading military personality falsely represented the British-Canadian reconnaissance in force as an unsuccessful main landing, thus catering to Hitler's delusion and wishful thinking to "throw" the British "again into the sea."

It is questionable whether Hitler ever learned of the captured order that clearly stated the reconnaissance nature of the raid—a sort of commando-type undertaking in big style, with directives to return to the ships as soon as its objective had been achieved.

It is just as debatable whether this energetic personality, who caused this misrepresentation, really only intended to direct Hitler's attention to the West, since in his preoccupation with the Eastern Front he treated it as a stepchild.

In either event, from then on the belief persisted that an energetic defense could and should prevent a major landing.

All things considered—Rommel's lack of strategic schooling, his delusion to be able to halt the Allied assault with third-rate infantry divi-

sions, his dangerous luxury of disposing Panzer divisions far forward at the coast, all operating under a confusion of orders—the outcome of the battle was not only inevitable but also logical.

The earlier Allied landing at Salerno and the fact that a German Panzer counterattack near Gela in Sicily was not halted by the ground troops but by the naval artillery should have made thinking soldiers more thoughtful.

Rundstedt, supposedly the commander in chief, had no command authority over either the air force or the navy in the West. Hitler simply adhered to an old and often applied political principle of his homeland, the Danube-Monarchy, to divide in order to rule.

## Field Marshal Rommel

Rommel probably was the most dynamic German personality of the Western Front. Upon his arrival command conditions did not undergo any practicable changes; rather, one could even sarcastically say that the last remnants of clarity disappeared. Between a soldier such as he was, justifiably self-confident and still charged with energy in spite of overtaxation in Africa, and the wise, resigned, and undynamic Field Marshal von Rundstedt, with his thorough but one-sided experience in land operations in the old style, a fruitful cooperation could not be expected.

Pity for the tragic fate of a brave, tactically able, and strong-willed soldier, which Rommel was, has nothing to do with the careful *historical* evaluation of his pertinent decisions. This remark is made with respect to evaluations made under the influence of a becoming loyalty to him on the part of members of his erstwhile staff, as

well as springing from the need of Germans in general for hero-worship. But when it becomes apparent that the truth is in danger through non-factual or one-sided presentation or due to silence then the sober examination of military history is endangered too, together with the truth. Be that as it may, Rommel was human and as such he was not infallible. It is my purpose here to reflect on his talents cursorily, not definitively.

One of my earlier World War II impressions of Rommel grew out of a conversation after luncheon at Poznan in 1941, where we had gathered for an operational war game. Field Marshal von Bock was talking to Field Marshal von Kluge."

"Kluge, Rommel is now in Africa. Do you happen to know him more closely?"

Von Kluge replied: "Yes I had him under me in the campaign for France with his 7th Panzer Division. He is a daredevil. But in reverses he is prone to error."

An "enemy" viewpoint is even more enlightening. This extract is from a letter by a Commonwealth soldier who participated in the battles against Rommel in North Africa:

*Dear General von Geyr:*

*... It is quite clear that Rommel wanted to transpose his experiences from the Alam Halfa battle to the completely different conditions in Normandy. The region around Alam Halfa is a flat, barren desert where dust clouds constantly betray movements, miles away and even by moonlight. When one side has absolute supremacy of the air, such as was the*

<sup>5</sup> Events later overtook Von Kluge. When the German forces failed to repel the invasion, he was relieved of command. Almost simultaneously Hitler discovered Von Kluge's complicity in the plot on his life. Knowing full well the consequences of his participation, Von Kluge took his own life.

case for the British, maneuver becomes extremely difficult for the opposing side. This specific situation, of course, required an adaptation of otherwise valid principles, but only in a degree that is commensurate with this particular situation. Rommel was clearly in the wrong when he held that because tanks could not move either by day or by night in the region around El Alamein, this was also true as far as Normandy was concerned. Under these altered circumstances, his defense plan was doubtless a bad one. In addition to this, there was the lack of a clear and strong direction by one single responsible commander in chief with the authority to make decisions and to have these executed.

If a technically experienced German commander in chief would have been in charge, the battle there could easily have had a different outcome.

The reason for Rommel's success in Africa was perhaps the limited competence of his enemy.

An over-all evaluation of Rommel made by the German liaison officer of the OKW (Armed Forces High Command) to the Italian High Command in Libya is only partly reproduced here and limited to the purely military aspect:

Without a doubt, Rommel was personally a very brave man.

He was an excellent tactician but a bad strategist.

Only rarely were his decisions based on thorough considerations, but mostly on intuitive impulses. I remember that he informed me of his decision for the recapture of the Cyrene with these words: 'I have the feeling that I should attack now.'

He studiously overlooked the decisive question of the African theater of war, namely that of supply, in his

decisions and frequently remarked 'that he understood nothing of supply.'

His glorification by the British and the Americans is based partly on lack of knowledge of internal happenings and in part on their need to vindicate themselves and on the desire of the Allies to enhance their own rather meager performance by the defeat of as great an adversary as possible.

Rommel was completely and entirely a frontline soldier. He strove to be in contact with the situation and the spirit of the soldier on the battlefield. This is why respect remains; one could obey him even when the opinions on the conduct of the battle differed considerably.

These excerpts of evaluations by people of admitted wisdom are not meant to minimize his well-earned recognition when he was successful.

All in all he was a man.

## Remnants in Normandy

The quality of the German troops who stood in and behind the fictitious Atlantic Wall and who died fighting bravely was extremely varied.

An evaluation, such as the United States Headquarters had published in a meticulously compiled handbook in 1917, would have accorded them a third-rate quality.

This statement of fact has nothing to do with their loyalty in combat, but it has everything to do with their physical condition and their inadequate equipment.

Again and again forces in the West were depleted to replace losses in the East. Further, the infantry divisions of the Seventh Army in Normandy consisted of 30 percent Russians.

Their equipment could not be compared with that of the attacker. They were immobile and practically had the

task to "defend a thinly occupied corridor position without depth and without adequate reserves. Some of the dugouts were only field expedients and due to lack of material, no concrete had been used."<sup>6</sup>

In the end, the so-called Atlantic Wall at no time seriously hindered the Allied landing.<sup>7</sup>

The appraisal of the Panzer divisions' degree of training, which Rommel's chief of staff described as incomplete in a subsequent publication, is outside his sphere of competence due to his lack of practical experience at the time.

Never before during the entire duration of the war had these Panzer divisions been granted so long a training period. Fortunately, Rundstedt gave me a completely free hand in training.

For years, complete agreement had existed between Colonel General Guderian and myself in urging progressive adaptation of modern combat conditions in all training matters. Within the scope of this training, in which the divisions of the Waffen SS were solely dependent on the orders of the Commander in Chief of Panzer Group West, the differences in contrast to the Panzer divisions of the army became apparent. Due to their stronger and better trained cadres, the latter were at an advantage. But they proved to be less adaptable when outdated training principles were discarded. It is simply untrue, as stated by a member of Rommel's former staff, that the Waffen SS had been less obedient to orders from higher army commanders.

The officers and noncommissioned officers' cadre was thinner in the

<sup>6</sup> Lieutenant General Hans Speidel.

<sup>7</sup> Colonel General Franz Halder.

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Waffen SS. Losses affected their combat value to a greater degree.

According to a preinvasion appraisal by the most battle experienced corps and division commanders of armor, the relative combat value of the Panzer divisions at the end of this training period still amounted to 30 to 40 percent of the combat value of 1 September 1939.

In view of enemy air superiority, emphasis in training was placed on combat by night and at dawn, on superior fire accuracy, and on a sweeping command technique. Three days a week were spent in night and twilight training in the end, and a further day was set aside as a so-called "air day."

To counter airborne landings, the divisions and their commanders were trained to drive into them at their onset without regard to the risk of attacking only simulated landings. This did not apply near Caen due to Rommel's standing orders and at the critical time his absence forestalled any change of the earlier orders.

Generally speaking, all effort was in vain. The Maginot Line mentality of Berchtesgaden held sway. Rommel either felt that he could not free himself from it or that he had to adhere to it. Sacrificing the most highly developed feature of the former German High Command—namely, mobile operation—he lost himself in limited tactics on the beach. In reality, it was a difference of opinions in a larger sense between Hitler and Rommel versus Von Geyr and Guderian. Of these two successful armor generals—Rommel and Guderian—the latter was equally brave, equally close to his troops, and equal in degree of battlefield experience. Without question, Guderian had a higher degree of in-

telligence, he was less impressionable in the face of victory or defeat, and, furthermore, he had operational schooling.

The Rundstedt staff in St.-Germain either did not want to or could not assert itself in this basic divergence of opinions. Perhaps nobody else could have prevailed in the face of Adolf Hitler's megalomania.

### **Air Force and Navy**

In order to understand the German situation in the West prior to the invasion, it is necessary to review a few complementary facts in connection with the air force and the navy.

Long before the start of the invasion it had proved impossible to learn from the air force command in Paris how much or how little support the ground troops could count on, once the invasion started. Obtaining information from Berchtesgaden was equally hopeless. Only lies emanated from there. It, therefore, remains surprising that Rommel or his chief of staff—as the latter states in a private letter of 31 July 1946—continued to believe even one word of Hitler's promises to send reserves.

The commanding generals of both the 1st and 2d Air Corps—which were stationed in the sector—were exemplary in their willingness to cooperate. Their plane crews knew of the hopelessness of their situation. Their willingness to fight was proved many times and their morale was undaunted. They became, as Speidel correctly put it, the victims of their highest leadership.

It seemed also as though their confidence in Göring had been impaired, although it was not mentioned openly. The voluntary deaths of personalities like Jeschonnek, the General Chief of Staff of the Air Force, and of Udet,

## INVASION

the famous air ace of World War I and Quartermaster General, were bound to leave deep psychological scars in the thinking of the flying youth.

The school for parachutists in Dreux gained high merit when Panzer Group West began to conduct, from September 1943 on, a program

The paratroop corps, in the role of ground forces, also was subordinate to the air force. Next to the Waffen SS, it probably had the best troop replacements. The corps was to fight superbly. Later, during the invasion, the air force-field divisions made their appearance, which represented a creation within the framework of Göring's



General Glocker, Chief of Staff, Air Fleet (on the right), converses with (left to right) Admiral Krancke, Navy, Paris; General Hans Speidel, Chief of Staff, Army Group B; and General von Geyr

of instruction of theoretical and, above all, practical night and daytime combat against larger airborne units. Unfavorable conditions were included in these preparatory exercises. At the time of my stay in England, I had met the leading personalities in that field such as General Browning. His judgment of the danger of the coming battle was commensurately high.

private and household troops, and proved themselves to be inferior in quality. Their structure precluded quality.

In any event, the intermediate command of the air force, from general commands inclusive downward, was willing to cooperate and to help.

Other circumstances obtained in the navy. The excellent personalities

—mostly younger admirals and officers—in the West did not impede collaboration. It was always a pleasure to meet them personally.

The source of the fault in that arm sprang from the commander of the Navy High Command West in Paris who, incidentally, as did Rommel, had a direct line to Hitler.

At first, through faulty estimation of geological and coastal formations, the navy did not believe in the probability of a major landing on the coastline between the Orne and the Vire. This may have changed in the end. Be that as it may, there were no mine barriers of any consequence in the Caen sector, nor on Omaha Beach on D-day.<sup>9</sup>

At an early date, I requested information from the Navy High Command as to the inland range of enemy naval artillery. The information proved incorrect. The calculations failed to include the possible trajectory of the larger naval guns. The information was 10 kilometers inland range for steep coastal areas and 20 kilometers inland for level coastal strips. Later, they actually reached approximately 30 kilometers inland and more.

When, behind the back of the bitterly fighting front, the "rebellion of

<sup>9</sup>Omaha: code name for the sector Bieville-Colleville, near the Cherbourg peninsula.

the conscience" broke out in Paris on 20 July, Admiral Krancke, through his chief of staff, confronted the commander of the Guard Regiment Paris, Colonel von Kraewel, with an ultimatum. He was either to release immediately the arrested leaders of the SD (*Sicherheits Dienst*: Gestapo department for political security and intelligence) and the SS, as well as the notorious high police officer Oberg, or to expect the 5,000 naval troops in Paris to disarm the Guard Regiment and to arrest its commander. Naval troops already had been mobilized against the army for this eventuality.

This has nothing to do with judging the quality of the naval forces, but it does with that of the individual personalities who were completely under Hitler's spell. British Air Marshal Slessor once told me after the war that next to his own people in the war he had never encountered a higher degree of bravery than that displayed by the German ships' complements.

*In the second and concluding article General Geyr draws some conclusions on the role of armor, reviews some of the urgent command problems that faced the Germans before and after the invasion, evaluates the crumbling situation at Caen leading to his dismissal by Hitler, and states his personal impressions about the adversary.*

The MILITARY REVIEW welcomes your comments on any material published. We do not publish letters to the editor, but we will make good use of your ideas and suggestions. An opposite viewpoint or a new line of thought will assist us and may lead to publication of your ideas. If you are an authority on a certain subject, why not write an article for our consideration? If you have only an idea, query us; perhaps we can assist you in developing an acceptable article.

# THE FIRST PRINCIPLE OF WAR



Lieutenant Colonel Emil V. B. Edmond,  
United States Army

**P** RINCIPLES of war have long been accepted by the world's armies as the basis for tactical doctrine, in spite of major changes in the weapons of war. Even the development of nuclear weapons has failed to dislodge them from their esteemed position. As new weapons have been introduced on the field of battle, some changes have been made in methods of application, but the principles themselves have survived as "basic truths."

The principle of the objective is accepted as the first principle of war, since application of the other principles contributes to its accomplishment. The coming of tactical nuclear weapons has not changed this. But it is possible that their introduction as weapons of war should bring some changes in the tactical doctrine for the application of this principle.

The question that arises pertains to the assignment of objectives for

ground combat operations when tactical nuclear weapons are used.

In studying the issue the logical starting point is the Army definition of the principle of the objective. Field Manual 100-5, *Field Service Regulations, Operations*,<sup>1</sup> says in part:

*Every military operation must be directed toward a decisive, obtainable objective. The destruction of the enemy's armed forces and his will to fight is the ultimate objective of war.*

## Effect of Nuclear Weapons

Nuclear weapons are the greatest destructive force currently known to man. Clearly they have much to contribute toward the destruction of the enemy's armed forces. Thus from a military viewpoint, the use of nuclear weapons is consistent with the principle of the objective, although political leaders may question the use of

<sup>1</sup> Field Manual 100-5, paragraph 204 a, also defines objective as: "An objective may be a terrain feature, a locality, or a hostile force."

*Army doctrine recognizes the importance of nuclear weapons, but our traditional concept of terrain objectives as ends in themselves should be modified since their possession may lend only a fleeting advantage*

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nuclear weapons as a means of destroying the enemy's will to fight.

Field Manual 100-5 also states that, "The objective of each operation must contribute to the ultimate objective." The use of nuclear weapons should not in any way invalidate this statement.

In further explanation we find in Field Manual 100-5 the following:

*Each intermediate objective must be such that its attainment will most directly, quickly, and economically contribute to the purpose of the operation. It must permit the application of the maximum means available. Its selection must be based upon consideration of means available, the enemy, and the area of operations. Secondary objectives of any operation must contribute to the attainment of the principal objective.*

It is this latter explanation that we must study carefully. The doctrine stated here has been used as the basis for the assignment of critical terrain features as objectives for ground combat units. Such terrain features have been considered appropriate objectives since their capture and occupation would contribute to the eventual destruction of the enemy's armed forces and his will to fight—the ultimate objective.<sup>2</sup>

<sup>2</sup> Field Manual 100-5, paragraph 202 b, states: "The possession of critical terrain features is only important so far as the advantages accruing therefrom are exploited to destroy the hostile forces."

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The doctrine of our ground tactical units still visualizes attacking to secure high ground, bridges, communication centers, or other such critical terrain features. These units are trained to defend similar terrain features when they are considered suitable objectives for an enemy force. Nuclear weapons are accepted as a highly destructive source of firepower for use in support of the attack against terrain objectives or in the defense of critical terrain features.

### Obsolete Doctrine

I believe the use of tactical nuclear weapons in ground combat has invalidated the doctrine of assigning critical terrain features as objectives. In other words, the tremendous destructive capability of nuclear weapons has ended the logic of assigning an objective, other than complete destruction of the enemy's forces, to any ground tactical unit. This is a drastic statement that requires some explanation.

First, let us return to the current doctrine which allows the selection of critical terrain features as intermediate objectives for tactical units in ground combat operations. Can this doctrine be considered realistic when each opposing force possesses nuclear weapons in sufficient quantity to permit their use whenever desired? If this is the case, and one force captures a really critical terrain feature—one which is vitally important to the outcome of the operation—the second force can be expected to use its nuclear weapons to destroy the troops occupying this important area, or otherwise neutralize any advantage to the side holding this critical piece of terrain. Does it appear logical under such circumstances to conduct a tactical operation, with a critical terrain feature as its objective, when

## FIRST PRINCIPLE

the advantage can be wiped out immediately by the use of a nuclear weapon?

A few simple examples will serve to illustrate the point. Assume that within the zone of action of an infantry division there is a piece of high ground which is critical to the control of the operational area. A battle group is assigned this critical terrain feature as an intermediate objective. Its attack succeeds and the dominant terrain is captured. If occupation of this critical terrain really hurts the enemy, he can restore the situation by firing a nuclear weapon on this area. So we are right back where we started, and minus one battle group. Would it not have been better to have neutralized this high ground with a ground burst nuclear weapon, and to have given the battle group the objective of destroying the enemy forces located within its zone?

Here is another example. Assume that the capture of a certain bridge is considered critical to the success of a ground combat operation. Under present doctrine some unit is assigned the objective of capturing the bridge intact so that it can be used by our forces. If its attack succeeds and the enemy is really hurt by the loss of this bridge, he can be expected to use a nuclear weapon of sufficient magnitude to destroy the bridge as well as the unit in position to ensure its retention.

The same circumstances are applicable to a communication center that has been seized by a ground combat unit as an intermediate objective. Again, as in the case of the other two examples, the enemy can regain any advantage thus lost by employing his nuclear weapons to deny our use of this center and, at

the same time, to destroy the forces left in the area to secure it against ground attack.

These are extremely simple examples, but do they not illustrate what will happen in a nuclear war if the doctrine of assigning critical terrain features as objectives for ground combat units is continued? It is not logical to assume that an enemy, placed at a disadvantage by our seizure of a critical terrain feature, will allow this condition to continue when it can be overcome by a nuclear weapon. Nor can he be expected to expend his ground forces to regain the balance when he has these powerful weapons at his disposal. We must not lose sight of the fact that the user can, in general, control the length of time during which the strike area remains unsafe for the movement of unprotected ground troops.

The basic question here is, "How critical is the terrain feature which is selected as the objective?" If it is not important enough to influence the outcome of the operation, it is not a suitable objective. And if it is important enough to influence the outcome, an enemy armed with nuclear weapons cannot be expected to allow us to reap the advantages of holding it.

### Diminishing Advantages

Another consideration is that continued development in weapons and equipment has tended to cancel out some of the advantages gained through the occupation of critical terrain. For example, high ground generally is considered critical terrain because of the observation and fields of fire it affords. But are fields of fire so important in a nuclear war with the numerous delivery means now available for nuclear weapons, and the

great spread which exists in their yield capability? Is the observation gained by the occupation of high ground really so important in the face of rapid developments in the field of battlefield surveillance such as drones, radar, and TV, to mention only a few of the best known?

And then, to discount the importance of a key bridge as a critical terrain feature, there are zero ground-pressure vehicles and normal land vehicles which are capable of negotiating bodies of water without the help of bridges, boats, or rafts. With regard to a road or rail communication center, how critical will such a center be to the battlefield of the future in the face of continued development of helicopters and vertical takeoff and landing (VTOL) and short takeoff and landing (STOL) aircraft, as well as missiles for the transport of troops and supplies?

### A Revised Doctrine

I believe there is sufficient evidence to conclude that critical terrain features are no longer suitable objectives for ground combat units in a nuclear war.

If this statement is true, what is a suitable objective for a ground combat unit? The answer is in the definition of the principle of the objective: "The destruction of the enemy's armed forces and his will to fight is the ultimate military objective of war." The objective of every ground combat unit, regardless of its size, should be destruction of all enemy forces within its assigned zone of action. Instead of conducting its operation to seize what might be considered critical terrain, the unit must seek out and destroy the enemy. The operation must be planned and executed toward this end, with critical terrain features

incidental to the operations plan.

Applying this doctrine, the division commander would assign a battle group the objective of destroying all enemy within its zone of action, rather than capture of a specific terrain feature. Battle groups, companies, and platoons would be assigned similar objectives. Each unit would direct its efforts toward maximum destruction of the enemy. Terrain would be utilized to its best advantage, but would be a secondary consideration.

Instead of thinking in terms of terrain captured or successfully defended as the criterion for judging the success of a tactical operation, we must think of the number of enemy destroyed. Destruction of the enemy force (or its will to fight) must be accepted as the only suitable tactical objective for a ground combat unit, regardless of size. Units must be trained to locate and destroy the enemy. The battle order for all tactical ground units must be to move, destroy, and survive.

In a sense, a ground combat operation in a nuclear war will resemble a naval battle. The objective of an operational naval force is destruction of the opposing naval force—the water itself is incidental to the conduct of the operation. A tactical air force, in its fight to gain air superiority, has the same concept of operations—attack and destroy enemy aircraft.

Ground combat operations, in which opposing forces are equipped with tactical nuclear weapons, will resemble air and naval battles. The objective of these operations must be to locate and destroy the enemy force. Terrain, critical or otherwise, must be a secondary consideration in the same sense that water is to a naval battle and airspace is to the air battle.



# DIVISIONS -

## THREE OR FIVE ELEMENTS?

Lieutenant Colonel J. Perret-Gentil, French Army, Retired

*Two outstanding division organizations have emerged from postwar study and experimentation. Organization in itself cannot win battles. But a balanced, sensible division structure imparts confidence to the man on the ground who must carry the fight to the enemy. Do the allied armies today have the best organization they are capable of devising and supporting? This article discusses some aspects of the dilemma.*

THE infantry division in the armies of the Atlantic Alliance countries shows two faces. The American version is a pentomic division built around five battle groups, whereas almost all of the European armies favor the triangular organization, that is, a division of three brigades.

On the eve of World War II almost all armies organized their infantry divisions around three regiments; a triangular organization that had evolved out of World War I. Although imposed primarily by an insufficiency of forces that had beset European armies, its maneuver flexibility had been recognized. In the defense the triangular organization enabled divi-

sions on the line to have a reserve. In the offense it allowed the commander to vary the balance of forces, for example, a main effort, secondary effort, and so on.

During World War II the two armies that had fought the longest—the Germans and Soviets—experienced similar difficulties in maintaining their troop strength. The former exhausted their resources and the latter foundered on inadequate training of their hastily formed cadres. In the face of these problems both sides reduced the size of their divisions to two regiments, which combat of that time favored.

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scale operations of weeks' or even months' duration. The typical German breakthrough normally was accompanied by lateral turning movements. The Soviets favored the double envelopment, such as that displayed by the counteroffensive at Stalingrad. In both cases, they strived to maintain the planned momentum.

The divisions did not maneuver, in the normal sense, in these operations. They were thrown into battle in successive increments and expected to maintain the momentum for a specified number of days. Very likely, if the divisions had consisted of three regiments, they would have exhausted themselves just as quickly as they did with two regiments. The belligerents preferred, therefore, to have many small divisions of about 10,000 men each, rather than fewer but larger divisions.

### Economical Use of Formations

The Soviet technique of grouping artillery in divisions, as opposed to fixing artillery organically in the infantry division, seems to have had its roots in the same set of conditions. Artillery units did not spend themselves as quickly as infantry. This made for a more sustained as well as more economical use of their formations.

These antecedents, brought about by the war and the ingrained habits they have created, may well be the basis for present-day German and Soviet concepts.

However, as early as 1950, when the reorganization of ground forces began in earnest, the Soviets mani-

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festly took other considerations into account. Having always suffered under insufficient cadres and shortages of material, they formed large units such as they would have preferred to have had during World War II. Today, these units are conspicuous by their modernization—greater firepower and increased troop strength formed around the three-regiment division. Curiously enough, they have approached duplication of the large American-type division, a level they were never able to attain during hostilities.

### Troops Increased

Until recently, the US division actually has not varied greatly. It presented an imposing structure together with a gradual introduction of innovations that have concerned, in particular, the exercise of command at all levels. But the proportion of service troops to combat troops has increased alarmingly, so that the whole has grown unwieldy.

Under combat conditions the tailoring of the "combat team" was the preferred technique, thus ensuring that the demands of a specific combat situation could be met. No other army carried this procedure as far.

The armored division nominally held to the four-sided organization but in reality was triangular because the fourth element—the heavy tank regiment—normally supported the three medium tank regiments.

During the closing days of World War II, the European divisions underwent a revitalization and adopted the American organization, mainly because US materiel became readily available. However, the British Army retained its system of divisions comprised of a variable number of brigades which, in turn, were made up

of two or three infantry battalions. The brigades and battalions were flexible formations for use in all theaters, both inside and outside Europe.

This situation, characterized as it was by the predominance of the American-type division in Europe and by the particularity of the British formations, was to grow more extensive when general rearmament began under the impetus of increasing Soviet aggressiveness at the time of the Korean War. Again, the forces of the European countries received US Army materiel around which the American formations were built.

Up until and including that time, the triangular division had been maintained generally everywhere. The Soviets themselves had retained it despite the fact that their divisions were smaller as far as the number of troops were concerned. This, therefore, suggests that the triangular system was generally believed to offer the greater maneuvering flexibility, making it possible to hold a front, as well as to counterattack, to vary an offensive effort, and to ensure its followup by passage of lines.

### Reappraisal

The advent of tactical nuclear weapons in 1950 brought with it a searching reappraisal of structural organization. Up to that time, the planners envisaged only the strategic use of nuclear firepower; the 280-mm cannon and the *Honest John* heralded a new age. The division now would have to defend itself against enemy nuclear fire and simultaneously devise ways to use its own organic and supporting nuclear fires to the best effect.

The principal North Atlantic Treaty Organization partners, except Britain, studied the problem and compared their findings. The British from

the outset were not disposed to change their traditional structure and, therefore, stood apart from the Americans and the French. Stated in its simplest terms, the problem was this: in view of an anticipated approximate 25 percent reduction in (US division) strength, how many combat elements should the division contain, bearing in mind the requirements of autonomy and overwhelming firepower?

It is interesting to note that the Americans began their experimentation with a division of seven elements, comparatively the size of small battalions. They arrived at seven in order to constitute two combat echelons and a division reserve. The resulting weakness of the combat elements forced an over-all reduction later on.

Contrary to this situation, the French started on the basis of three elements and revised upward, first to four and eventually to five combat elements. Thus, by somewhat circuitous routes, the partners arrived at an identical conclusion.

### Pentomic Divisions

After further extensive study and testing, the US Army reorganized its forces. Both the infantry and airborne divisions were transformed into pentomic divisions, consisting of five combat groups—later termed "battle groups"—with their own organic artillery. The armor division retained its basic structure but received nuclear weapons—rockets and howitzers.

The British likewise retained their brigade organization and contemplated only the addition of a nuclear weapon capability at division level.

In 1954 the French first created a division with five regiments; but events in Africa forced them to divert

a large part of their forces from Germany and metropolitan France, thus interrupting and delaying their studies.

It is not necessary to review the composition of the pentomic division in detail. But it should be noted that the US Army achieved a reduction of division troop strength largely by regrouping all the command elements at the division level, by doing away with one echelon, by merging regiment and battalion into one unit, and by reduction of artillery.

The French division was similar to the pentomic division in structure but differed in its conception of the command structure. The Americans did not foresee preplanned tactical groupings. The division commander had a brigadier general (assistant division commander) and colonels at his behest who could command the tailored combat teams of one or more battle groups with reinforcements, as the need arose.

From the outset the French division was to have two general staffs, corresponding to an advanced and rear echelon of the division, each having appropriate tactical groupments. During the 1958 maneuvers they were formed into combined-arms teams. Each echelon played a specific role in one of the maneuver phases; the mission of the first was to delay and the second to counterattack.

The two systems differed only slightly; rather they denoted an adherence to traditional concepts. The Americans based theirs on practical experience, whereas the French was more theoretical. Neither affected the principle of the division of five elements.

At the time the pentomic divisions were formed, adoption of the five-

sided organization throughout the NATO countries appeared assured. The uniformity of a single type of infantry division offered definite advantages to all the participating countries. In addition, adoption of the pentomic organization permitted the continued existence of the armored division in approximately the same ratio of two infantry divisions to one armored division.

Simultaneously with the conversion of the US Army divisions, the new forces of West Germany came into being. The Germans planned for 12 divisions: six infantry, four armored, one airborne, and one mountain division. Although their troop strength had been determined in advance, their organic structure apparently had not been planned. The first units activated gave no clue as to their ultimate organization.

The German studies incorporated two basic brigades—one infantry and one armor—which they announced during the 1958 maneuvers. Since then they have studied and experimented further on the details of an organization that subsequently was adopted. Instead of 10 divisions (exclusive of the airborne and mountain divisions) the Bundeswehr will have 30 brigades, about one-third of which will be armored.

The originality of the German solution lies in the elimination of the organic armored division. If need be, it can be reconstituted simply by forming up two or more armored brigades supported by an appropriate number of infantry brigades. The brigades will play the role that divisions heretofore have played. Within the framework of the division mission, the force will be tailored to fit the occasion. Generally speaking, the di-

vision will consist of two infantry and one tank brigade, or vice versa.

### Panzergrenadier Battalions

The Germans have further refined their concept by devising a number of identical *panzergrenadier* battalions (armored infantry), which operate solely in support of armored battalions. The integration of arms occurs at the brigade level and not within battle groups as it does in the pentomic division.

Further, they found it necessary to distribute the command and logistic functions between the divisional command and brigade. Normally, these functions would accrue to division. The brigades also have nearly all of the artillery, except for one echelon of nuclear firepower (*Honest John*), which will be retained at the equivalent of division level.

Thus these brigades enjoy a certain autonomy of command, maneuver, and logistic independence. The latter may be less far-reaching than has been claimed, probably only two combat days.

### Baukasten System

The Germans have tagged their system *baukasten*, which literally translated means "construction box," or more freely, building blocks; a box containing blocks with which one can build things. The term conveys the idea that guided the creation of such units, the different elements of which may be incorporated at will into forces tailored to the needs of the moment.

Nevertheless, this is not the only connotation. The German brigade actually realizes the idea of the small infantry division of World War II on the Russian front. It is, in fact, somewhat lighter; four battalions, two infantry, one *panzergrenadier*,

and one tank. Conversely, if the need arises, these brigades could be reinforced easily and brought up to the strength of the old wartime division.

The new German formations, therefore, derived both from wartime experience and from a strongly felt need to respond to the demands of alternate offensive and defensive action. The divisions can spell each other—one fights while another rests, although none has any real endurance.

To a certain degree, the German division—or brigade grouping—resembles the new Soviet infantry division, which is also built around three elements (regiments in this case). Over-all, the Soviet division remains numerically weak. The Soviets apparently have retained the principle of maintaining a large number of small divisions, not limited to any precise predetermined number. Even in the face of highly publicized reductions of their troop strength, the Soviets confront Europe to the west with hundreds of divisions. They have beefed up their divisions to the extent they now consist of three infantry and one armor regiment.

But the similarity between the German and Soviet division stops here. The latter does not have the unique German *panzergrenadier* battalion, which is inseparably linked to all tank functions. On the other hand, the Soviets have mechanized divisions that follow in support of armored divisions.

The apparent gradually developing proportion that the Soviets are driving for is one-third infantry divisions, one-third mechanized divisions, and one-third armored divisions.

Thus the Soviets and the Germans are very close in their concepts; the Russians build small divisions and the

Germans build brigades that can be easily reinforced. Both sides have felt the need to lend more consistency to their basic formations. While the Soviets have arrived at a conventional type of division with three regiments, the Germans have made more radical innovations.

#### **Maximum Armor Integration**

The Germans form the infantry-tank team on the lowest level within the brigades and not from division to division. They have eliminated the armored division per se and they have no mechanized divisions because the *panzergrenadier* fill this roll in all tank formations. Elements of both armored and mechanized troops, found in all brigades, may be switched at will to form combat teams heavy in either infantry or armor. Thus the Germans have achieved maximum armor integration; the only unknown quantity is the heavy tank regiment. No doubt they will retain it organically at the army corps level for support of the armor-heavy division.

The German system presents an original and interesting innovation. It is ingeniously built in a logical way, offering great flexibility and maneuverability. It preserves organic ties to a large degree—which commanders and troops appreciate—but the parts facilitate the formation of tailored tactical groupings or combat teams. Furthermore, the system enjoys a certain prestige, having been conceived and based on German combat experience.

The German ideas have gained favor in Central European military circles. The French Army, for example, has come over to their point of view and already has activated one infantry and one armored brigade. They call the brigade "the smallest

of the large units" and its semiautonomy is much in evidence.

One major difference exists between the German and French brigades—the latter are appreciably heavier. The French infantry brigade is one-third and the armor brigade almost one-half heavier than the German.

The French Army is not a priori subject to restrictions either in total strength or the number of units, which makes it possible to confer a greater degree of autonomy on the brigade, in respect to both personnel and armament. It is possible, therefore, that the French brigades are at the level the Germans will attain by reinforcement.

#### **Bundeswehr Theory**

In essence, the US Army division presently is the only radically changed division; all other armies, European and Soviet, have reverted to the triangular division in one form or another. Among these the Bundeswehr theories are the most intriguing. The controversy then centers on the relative merits of the US pentomic division and the German triangular division.

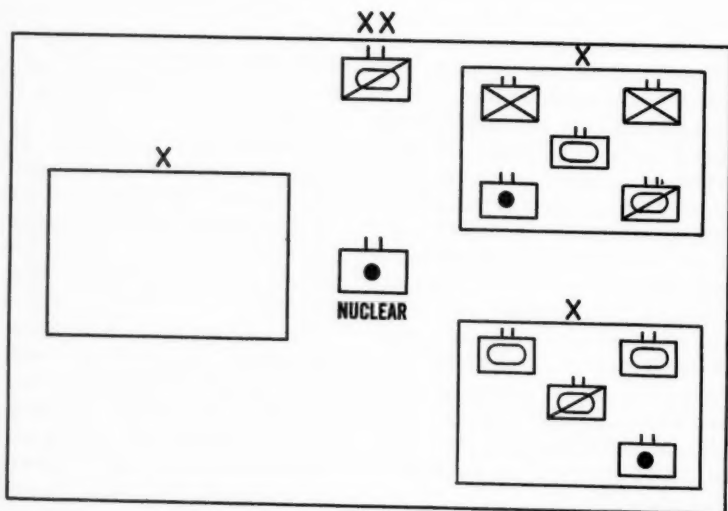
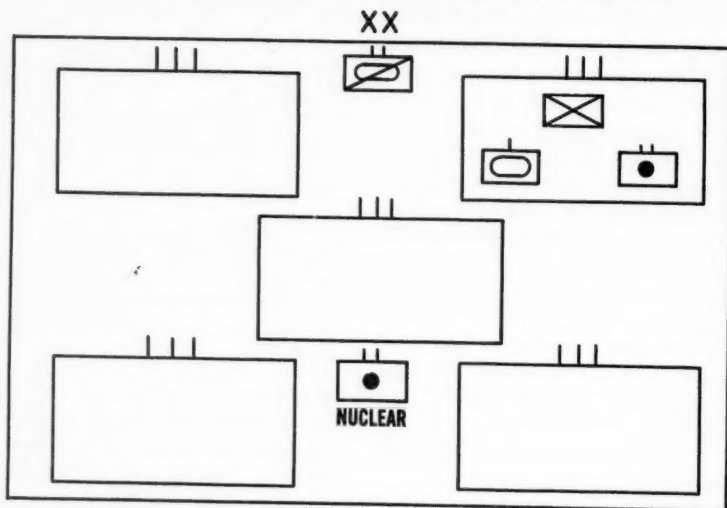
What has been said about the superior quality of the German brigades nevertheless is prone to distort any comparison based on present-day conditions.

Two essential facts must be borne in mind:

The Americans have made radical innovations. They have resolutely looked for and adapted a formula that responds primarily to future conditions of nuclear war as far as they can be foreseen. Up to now there never has been a major unit built around five subordinate units as maneuvering pawns.

The Germans have adopted a classic

# SIMPLIFIED SCHEMATIC OF THE PENTOMIC AND TRIANGULAR DIVISIONS



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formula on the battle-proved triangular organization; and it cannot be overemphasized that they have done it remarkably well. The Soviets, likewise, have arrived at a solution more nearly akin to the classic triangular system than any other. It remains to be seen if any marked superiority may be adduced to one system over the other.

Can we reconcile the divergent views and arrive at an ideal solution that would embody the best features of each organization? Eventually—the sooner the better—a decision must be reached. The problem patently does not lend itself to easy solution. If one were to calculate for both types of divisions—their relative troop strengths, the number of units down to the smallest ones, taking into account their arms and interrelationships—nothing conclusive would result. In a general way, a rather tenuous equality is arrived at by ascribing to each division one echelon of nuclear firepower. Rather, the discussion must center on the over-all organization and the interaction of the subordinate units, thus allowing more freedom in facing the demands of the moment.

The already enumerated advantages that the pentomic division offers are not present in the same degree in the triangular (three brigade) division.

#### **Wider Dispersion**

The division of five elements is particularly well-suited to deploy over a vast area. Whether we like it, whether we are aware of it, a certain degree of contraction always will occur within the engaging unit because the commander will keep his means close at hand. He will have to coordinate and adjust his fires, his liaison, and his

diverse parts. These contractions will occur within three elements as well as five; therefore, it is evident the division with five elements ensures from the outset a wider dispersion than one with three elements.

The pentomic division can spread out to a maximum degree in its assigned area; whether it is standing or moving, or deployed in a square, diamond, or rectangle, it is able to adopt all formations. When spread to its maximum capacity, a triangular division (three brigades) always will have a relatively weaker density on two or even three flanks. Necessarily, one echelon will have only one brigade, either to the front or rear, and will occupy less than half of a 20 by 20 kilometer sector.

The fifth element of the pentomic division can play the exceedingly useful role of a central reserve. Deployed and used in this manner, it would never have more than 10 and almost always rather less than 10 kilometers to traverse to arrive at the point of enemy breakthrough. The third (and possibly light) brigade of a triangular division more frequently would have a longer distance to move, according to its position at time of need. Ten kilometers already is a maximum march for quick intervention. The alternative solution for the triangular division under such circumstances is to draw away strength from its engaged brigades, which would disrupt the established balance in its composition of forces.

The pentomic division can effect relief of one echelon of two battle groups by the reserve or uncommitted battle group. It is true that the triangular division could operate in a similar manner. Recall that one of the basic ideas that preceded its cre-

ation was to effect a sort of constant rotation of brigades at those points where the battle demanded it. The possibilities are closely related, but for the triangular division it could create a void or, on the contrary, a saturation in one part of the division

framework of the division itself. In short, the pentomic division permits a pentagonal or five-sided deployment of the whole.

The German brigade may be constituted in two ways: first, with two infantry battalions; and the second,



US Army

Whether three-sided or five-sided, the division must be organized to provide the best chance for success when the individual soldier is committed to battle

area. Even short duration saturations must be avoided in nuclear war.

### Flexibility Required

According to the foregoing discussion, it is not the brigades' capacity for combat and maneuver that is really in question, but the over-all flexibility that is realized within the

with a tank battalion and its inseparable *panzergrenadier* battalion.

In its first form the brigade normally is capable of two missions: to hold a subsector (defensive), ensuring the protection of the armor units; or to follow in support (offensive), covering the flanks of the armored or mechanized element. But nothing re-

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Review

mains to counter enemy movement through the uncovered areas created by dispersion.

Attaching a third infantry battalion to the brigade would solve the problem. In this way, an echeloning within the brigade would be achieved which would compensate for its apparent absence within the framework of the division. This would require two additional infantry battalions per division. The added strength would not strain the command channels or unbalance the supporting elements, already adequate to meet increased demands.

This is what the Soviets have done throughout their triangular system, from divisions down through companies. Although their troop strength is low, modern command and communications, increased firepower, and special weapons tend to overcome this weakness.

The French division of three brigades seems headed in the same direction. In contrast to the German brigade, the French infantry brigade contains an additional mechanized battalion and the armored brigade a regiment of medium tanks. The French are continuing their experimentation, as a result of which the division in its final form may show even further changes. For example, the command structure and the number of troops may be enlarged to about 19,000, which they judge is a maximum size compatible with the

division sector in nuclear war. In any event, the French brigade will have more nearly the character of a small division than will the German brigade.

### What Is Perfect Solution?

The Allies probably never will devise a division perfect in all respects, but neither will the Soviets. It is difficult to imagine a division that would embody the best features of both the triangular and pentomic divisions. The concepts that prevail in Europe at the moment mainly are the result of wartime experience. The progress that the Germans have made cannot be denied, particularly in the integration of armor and the facility to reconstitute, easily and as circumstances may require, a potent armored unit.

Their planning is enhanced further by the innovation of a *single* division that lends itself to a variety of structures. On the other hand, the US division is adaptable to the conditions of nuclear war, but only at the division level. It is unwieldy and uneconomical.

If the answer were to be found in a simple game of mathematics, which it is not, one might suggest that the best solution lies somewhere between three and five. But the addition of another infantry brigade, while giving the division greater strength and flexibility, is a less than perfect answer.

# TWO VIEWS ON THE

Do they exist?

Have we found them?

Are they principles?

Major J. Nazareth, *Indian Army*

THE principles of war are an essential part of our military doctrine. They are accepted as the basis of teaching which provides a solution for success in battle. Eminent military thinkers and commanders have endorsed them and have freely quoted them in their writings. Their truth has not yet been seriously questioned. Like the Ten Commandments, the principles are now hallowed and enshrined on the altars of our military schools.

The principles of war do exist; but our present concepts of them are inadequate, misleading, and of exaggerated practical use. These concepts give a semblance of unwarranted profundity to military thinking. Lest this article be treated as wanton iconoclasm rather than the product of serious study and thinking on the subject, it is necessary for me to make a few preliminary remarks. Rationality is a faculty that reduces all men to a common denominator. Reason is

the sole means of arriving at logical truth; and it is only by reason, devoid of tradition and sentiment, that the validity of arguments can be tested. Due to the complexity of the subject, I shall confine myself only to the broad issues.

The first logical fallacy that obscures reason which the reader should guard against is *ignoratio elenchi*—ignoring the issue by an appeal to the individual. This would consist in giving weight to the reputations of the persons involved in an argument rather than to the logic of the argument itself.

Truth is difficult to discover and knowledge is continually being advanced. The philosopher Descartes in his *Discourse on Method* decided to base his inquiry on a principle which gave him a certain foundation, "Never to accept anything as true which we do not clearly know to be so." Using this basic principle for this present analysis, the first question is, "Do we clearly know our present concepts of the principles of war to be true?" Superficial thinking has answered, "Yes," and for this reason they are taught. However, there is far too much confusion in these concepts, as I shall presently show, to accept this answer.

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Why are they needed?

How many are there?

Does modern war require new ones?

# PRINCIPLES OF WAR

Major M. J. W. Wright, *British Army*

**“W**EAPONS change, but the principles of war and our geographical situation remain constant.” One has seen a statement similar to the above many times. Such dogmatic statements are common in military journals, and before being accepted at their face value should be examined very critically.

In the first place, it is difficult to discover what these principles are.

A glance at the accompanying chart shows that at various times in the last hundred years or so, at least 24 principles of war have been put forward; and of the lists shown on the chart, no two are the same. Further research would no doubt reveal many more lists, all different. The exponents of most of these lists have stated quite categorically that “this is the list of the principles of war.” One wishes at least that they had the modesty of the writers of the Holy Gospel, who did not state that theirs was *The Gospel* but only the Gospel according to the writer.

A further study of the chart will show our second difficulty. Many of the so-called principles listed will not stand examination against the definition of the word “principle,” which, as stated in the *Oxford Dictionary*, is “a primary element, force, or law

which produces or determines particular results; the ultimate basis upon which the existence of something depends.” Other dictionaries give other definitions, but in any event, as pointed out by Maurice:

*... military terminology has never pretended to be scientifically exact, and as long as we know what we mean when we talk of principles of war it is not necessary to be pedantic in the use of terms.*

However, some of the principles listed can by no stretch of the imagination be classed as principles; for example, ability of commanders and freedom of action.

The object of this article is to examine critically these lists and to try to produce a list of true principles which apply to all situations in war at all levels of command. If this proves to be an unattainable ideal, then a list that applies in most situations at most levels of command must be accepted.

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## The Need for a List

It is first necessary to be quite clear as to why a list of principles is needed. A study of military history shows that our forebears got along very nicely without one. Sun-tzu, Vegetius, De Saxe, and Frederick the Great, for example, although they wrote profusely on war, never produced a neat, tabulated list of principles in the modern style. Even Napoleon's military maxims cannot be compared with a list of principles of war. There is no doubt that a critical examination of the work of these writers does reveal that they did state some of the principles recognized today, but these are hard to find as they are mixed up with the tactical doctrine of the time. There is no doubt also that the habit of tabulating lists of principles, most of which can be expressed in a single word, is comparatively modern. The difficulty with this tendency, as pointed out by Liddell Hart,

*... is that these single-word principles need several thousand words to explain them. Further, these so-called principles mean different things to different men, and for them to have any value depends on the individual's own understanding of war. The longer one continues to search for such omnipotent abstractions the more do they appear a mirage, neither attainable nor useful, except as an intellectual exercise.*

If these single-word principles are indefinite, why then is so much importance put upon them? One reason may be that the professional military man of today has so many fields of study and the available study material is now so vast that some simple summary of the basic business of waging war is needed. This is a very poor substitute for the full and detailed

study of military history and the forming of one's own opinion on what particular lessons can be gained from a campaign. But in view of the short time most officers are able or willing to give to the study of this aspect of their profession it is probably of some use.

It is essential, however, that such a list of principles should be sound, but it would be presumptuous to pretend that it is the ultimate and only possible list.

## Selection and Maintenance of the Aim

This principle, with slightly different wording, appears in 10 of the lists on the chart.

Possibly the principle is so basic and obvious that the authors of the other six lists did not consider it worthy of mention. However, the obvious is often missed and so this principle must certainly be included if only to make commanders at all levels consider from time to time what they are trying to achieve. Since selecting the aim must precede any further thought, this principle deserves the place of honor.

## Concentration

A clear conception of what this principle involves is fundamental to an understanding of the nature of war. Until 1935 it was first on the British list, and several writers still put it right at the top. Burne V. Kennedy states that many of the disasters of World War II, on both sides, were due to the flagrant violation of the greatest principle of them all—concentration. Liddell Hart goes further, and says that all the principles of war can be condensed into the one word—concentration. Concentration of force against weakness, concentration of force achieved by dispersal, thus forc-

Principles of War:  Past  Present  Proposed	1830	1899	1903	1912	1929	1929	1929	1932	1944	1945	1948	1950	1955	1958	1960	This Article
	Clausewitz <sup>1</sup>	Henderson <sup>2</sup>	Foch <sup>3</sup>	Colin <sup>4</sup>	Maurice <sup>5</sup>	British FSR <sup>6</sup>	Liddell Hart <sup>7</sup>	Liddell Hart <sup>7</sup>	Burne <sup>8</sup>	Montgomery <sup>9</sup>	Macklin <sup>10</sup>	UK <sup>11</sup>	Canada <sup>12</sup>	USSE	US Army <sup>13</sup>	
Principle																
Ability of commanders																
Administration																
Airpower																
Armament																
Concentration of force (mass)	x	x		x	x	x			x	x	x	x	x		x	x
Cooperation (unity of command)					x	x			x	x						
Don't lunge if your opponent can parry							x	x								
Economy of force			x		x	x	x		x			x	x		x	
Exploitation of success							x	x								
Flexibility							x	x								
Free disposal of forces			x													
Freedom of action			x													
Mobility/movement	x			x	x	x			x	x						
Morale																
Never reinforce failure							x	x								
Offensive action	x			x	x	x										
Public opinion	x															
Pursuit	x	x														
Quality and quantity of divisions																
Security			x	x	x	x			x							
Selection of objective (aim)	x			x		x	x									
Simplicity		x														
Stability of the rear																
Surprise	x		x	x	x	x	x	x	x	x	x	x	x	x	x	

<sup>1</sup> Clausewitz, *Principles of War*, a translation by Hans W. Gatzke, published 1943.

<sup>2</sup> Henderson, *The Science of War*, by Colonel G. F. R. Henderson, 1899.

<sup>3</sup> Foch, *Des Principes de la Guerre*, by Marshal Foch, 1903.

<sup>4</sup> Colin, *The Transformation of War*, by Commandant J. M. A. Colin, 1912.

<sup>5</sup> Maurice, *British Strategy*, by Major General Sir Frederick Maurice, published 1924.

<sup>6</sup> British *Field Service Regulations*, Volume II, 1929.

<sup>7</sup> Liddell Hart. These two lists are taken from *The Way to Win Wars*, 1929 and *The British Way in Warfare*, 1932.

<sup>8</sup> Burne, *The Art of War on Land*, by Lieutenant Colonel A. H. Burne, 1944.

<sup>9</sup> Montgomery, *High Command in War*, by Field Marshal Viscount Montgomery, official 21st Army Group publication, 1945.

<sup>10</sup> Macklin, "An Introduction to the Study of the Principles of War," by Major General W. H. S. Macklin, published in the *Canadian Army Journal*, April 1948.

<sup>11</sup> UK. Official United Kingdom list, as published in *The Conduct of War*, 1950.

<sup>12</sup> Canada. List taken from 1955 Canadian Army pamphlet.

<sup>13</sup> US Army. List of Principles of War as taught at the U. S. Army Command and General Staff College, academic year 1960-61.

ing the enemy to disperse, and then sudden concentration of force against his weakness. This principle, therefore, involves four other so-called principles—surprise, mobility, flexibility, and security.

Concentration need not imply the physical concentration of resources in a small area, thus inviting disaster in a nuclear war, but rather concentration of force by firepower as well as manpower, achieved by mobility, flexibility, and surprise.

Napoleon was most conscious of the importance of this principle, and stated that "the art of war may be reduced to a single principle—to unite on a single point a greater mass than the enemy." This principle is, therefore, worthy of a high place and should come after selection and maintenance of the aim only because it is useless to concentrate strength over weakness without first being quite clear what we are trying to achieve.

### Offensive Action

No great military thinker in the past has denied that offensive action is necessary to achieve victory. Clausewitz is often quoted to suggest that he thought otherwise when only the first part of his statement is quoted: "the defensive form of war is of itself stronger than the offensive," but he goes on to say "we must only make use of it when our weakness compels us to do so."

Clausewitz also states "the most important thing in war will always be the art of defeating our opponent *in combat*." It is difficult to see how one can defeat an opponent in combat without taking offensive action. Even the most successful defensive actions in history, such as Torres Vedras or Stalingrad, have been followed by an

attack against the enemy who was broken by the prolonged defense.

This line of thought was also followed by Hamley, who said:

*The weaker will often be wise at first to avoid battle, but as he can only gain the objective of his government by defeating the enemy, he must avoid it only while conditions are unfavorable to him, and his constant object must be to find or make opportunities for dealing effective blows.*

Offensive action, therefore, is the next logical step in the military thought process. First, we select the objective, next we concentrate force over weakness at the place necessary to achieve our object, and then we take offensive action with force we have concentrated.

### Public Opinion

Public opinion appears at first sight to be out of place in a list of principles of war. A glance at the chart will show that only Clausewitz has included it, although Macklin does mention its importance. The importance given to public opinion in the writings of Clausewitz is understandable, as is pointed out by Maurice and follows directly from his definition of war as "a human activity which should not be considered apart from its influence on men and women in general."

In a democracy it is necessary, even in wartime with censorship in force, to take action which has a large measure of public support. There have been many cases in recent years where a commander in the field has not been able to take sound military action because public opinion, both in the home country and in the world in general, would not allow the required action to be taken.

For example, in 1950 the principles

of war required General MacArthur to take offensive action against the Chinese over the Yalu River, thereby ending the Korean War. Public opinion, however, reflected in the United Nations Assembly would not allow this.

Again in 1956 the Anglo-French action in Egypt could have succeeded militarily had public opinion allowed it to continue. It is necessary, therefore, to relate both the objective and offensive action to what public opinion will allow.

To emphasize the importance of the gaining of public support, there is a fair case for including it in a list of principles of war. However, it does not apply at all levels of command, and for this reason it must be left off the list.

#### Other So-Called Principles

The objective, concentration, and offensive action comprise our list. There is insufficient space to examine the claims of all the remaining principles on the chart, and so only those remaining on the official British list will be considered. It can be shown that all of these are merely methods by which three stated master principles are applied.

Surprise, flexibility, security, cooperation, and economy are means by which concentration and offensive action are achieved; they do not all apply in all, or even in most, circumstances and so do not merit inclusion in the list in their own right.

Morale and administration, while being vital to success, are again only means by which other principles are applied. It is probable that they only

have been included in the lists to emphasize their importance. While there is a great deal to be said for keeping them in for this reason, if the list is to be of principles only, they must be deleted.

#### Conclusion

There are many arguments for including new principles to meet the needs of a nuclear war, but a little reflection will show that all those that one hears suggested are methods of applying existing principles.

"Balance" was in vogue a few years ago; but this is really a facet of security, and this is not, therefore, a principle in its own right. More recently, "command," "leadership," "initiative," and "endurance" have been mentioned. These are not principles of war, but characteristics of a good officer or a good soldier.

If a list is required, and one must assume that it is, then it should be short and to the point. The three principles listed below are certainly to the point; it is believed that they are also comprehensive.

1. Selection and maintenance of the aim.
2. Concentration of force over weakness.
3. Offensive action.

It is not pretended that the above list is the panacea to all the problems of a student of war; but if this analysis of the much quoted lists of the principles of war, and their subsequent debunking, has made readers more critical of any future dogmatic statements on the subject, then the aim of this article will have been achieved.

(Continued from page 26)

I shall first try to expose the errors of our concepts and, thereafter, suggest in what direction the solution lies.

## Evolution of the Principles of War

Since the earliest times military thinkers have been trying to discover the principles of war. Sun-tzu from ancient China listed 13 principles. Clausewitz believed that there were principles of war which could be discovered. Jomini stated:

*The fundamental principles upon which rest all good combinations of war have always existed, and to them all others should be referred for the purpose of arriving at their respective merits. These principles are unchangeable; they are independent of arms employed, of times and places.*

Napoleon advised:

*Read again and again the campaigns of Alexander, Hannibal, Caesar, Gustavus Adolphus, Turenne, Eugene and Frederick. Model yourself upon them. This is the only way of becoming a great captain and of acquiring the secret of the art of war. Your own genius will be enlightened by this study, and you will learn to reject all maxims foreign to the principles of these great commanders.*

Now although all the great captains since the earliest times intuitively applied the principles of war, the scientific study of war is of recent origin. It was started by Scharnhorst who laid the foundation of the German General Staff in the beginning of the 19th century. Since that time until early in the 20th century, schools of military instruction have been referring to the principles of war without first enunciating them, which implies, to put it bluntly, without

knowing what they were talking about—a good reason to doubt their infallibility and a shaky start to a fundamental military doctrine!

Fuller has related how in 1911 he read in the British Army *Field Service Regulations* that "the fundamental principles of war are neither very numerous nor in themselves very abstruse." Nevertheless, when he searched for them in the current teachings he could not find them. He then proceeded to study the subject and, after discussions with Liddell Hart, evolved his nine principles—most of which were accepted as part of the official doctrine.

## Limitations of the Principles of War

The limitations of the principles of war arise from a lack of proper understanding of the implications of what a principle is. I shall deal with this point later. For the present let us consider the consequences of this inaccurate thinking.

We are told that the principles of war are not inflexible and universally applicable like the principles of the other sciences, but are merely guides to conduct. This view is illogical; and a corollary to this nonsense is the self-contradictory opinions of writers who talk of generals who were successful in spite of "violating every principle of war." The best answer to this view is given by Hamley in *Operations of War*:

*Nothing is more common than to find in writings on military matters reference to the rules of war and assertions such as that some General 'violated every principle of war'; or that some other General owed his success to 'knowing when to dispense with the rules of war.' It would be difficult to say what these rules are or in what code they are embodied;*

and an enquirer who is somewhat puzzled perhaps to understand how the highest proficiency can be displayed in a science by defiance of its own principles, had better resolve to base his own conclusions upon fact and reason alone when he will probably discover that such criticisms have only very vague ideas for their foundations.

### Guides to Conduct?

The principles of war are supposed to be "guides to conduct." The illogicality of this doctrine I shall consider later. For the present let us consider its practical value.

The implication is that when a commander is confronted with a situation his knowledge of the principles of war should assist him in finding the solution. Depending on whether he is British, Indian, French, American, or Russian, his principles of war will vary from three in number for the Frenchman, to nine for the American, and 10 for the British, Indian, and Russian. For the same situation his number of options will depend on his nationality and his school of thought. Obviously, he does not apply all the principles equally to deal with his situation. Now how does he know which principle to emphasize? In other words, what is his guide to selecting his guide to conduct? The all-embracing answer offered may be, "The situation will tell him." It should; but then he is depending more on his commonsense than on the principles of war.

As a proof of this the military appreciation on which the commander bases his action has no reference to the principles of war. The assumption that the present principles of war are of practical use is justified by saying that while appreciating a situa-

tion the commander has them at the back of his mind. But since the appreciation teaches how to find the correct answer to the military problem, it seems surprising that we should be content to leave such a fundamental doctrine vaguely at the back of the mind while we stress the logic of the appreciation.

Another difficulty arises from the fact that all these principles, the guides to conduct, are themselves closely interrelated. If the commander decides to emphasize the principle of concentration, he may do so at the cost of surprise and offensive action. If he stresses offensive action, it may be at the cost of security and administration; and, likewise, administration may be stressed at the cost of offensive action, and so forth. A study of any battle will illustrate this point which need not be labored further. This again makes the selection of the master guide to conduct difficult.

An objective study of military history proves my contention. I shall confine myself to only two examples. Referring to the senseless offensive battles of World War I, Marshal Foch in his *Memoirs* stated:

*... the doctrine of the offensive ... tended to impose an invariable rule leading often to tactics that were blind and brutal and for that very reason dangerous. It also produced a strategy that was bare and uniform, easily sterile, unproductive of results and costly.*

This shows how difficult it was for the commanders to select the right principle to emphasize, and how misleading the concept of the principle of offensive action was.

Since the principles of war are accepted by all three services, I quote the next example from the greatest

naval battle in history, the Battle of Leyte Gulf in World War II. Admiral Halsey, Commander of the Third Fleet, had such a superiority over the Japanese Navy that he could have divided his forces between San Bernardino Strait and the north and yet have remained overwhelmingly superior in each place. He decided against dividing his forces because, according to him, he would thereby violate the principle of concentration, and he left the strait unguarded. *Because of this the Japanese forces under Kurita almost annihilated the landing forces at Leyte.\** That they did not do so was due to the strange chances of war, not to any perspicacity of the American admiral. This is another case of misguidance of a guide to conduct. If it is argued that the error was due to not concentrating at the right time and place as required by the principle, then the answer is that commonsense becomes the guide and not the principle.

## Justification of the Principles

Because our present principles of war are of exaggerated practical use we have to justify them by qualifying their use with the condition of "right time and right place!" Thus concentration becomes a battle-winning factor when carried out at the right time and right place. Here is a classical example of the logical fallacy of begging the question. The principle is no guide in knowing the right time and place but its application is required at the right time and place. Hence *after the battle*, if it were lost, it can be conveniently claimed that either the time or place of concentration was

not right; if won, that it was right. So what is claimed to be a guide to conduct is really a guide *after* conduct.

It is customary in military studies to analyze past battles in terms of the principles of war and to attribute success to the correct application of a particular principle, and failure to the disregard of another. In this way we accumulate a lot of military wisdom by hindsight. From this type of "post mortem" dissection, we decide whether the battle was lost due to anemia through lack of concentration or heart failure through an overdose of administration. The study of history is only of use when we can convert the hindsight of past analysis into foresight for future action; otherwise this study is merely pedantic. To develop this foresight the chain of causes and effects must be discovered. This is exactly what scientific principles enunciate. *The principles of all sciences are statements of universal relationships between causes and effect true for all times, not merely guides to conduct.*

Therefore, the fallacy in our concept of the principles of war is that we dissociate the principles of war from the principles of other sciences and consider them as merely guides to conduct. I shall expose this fallacy further.

## What Is a Principle?

In an ethical sense a principle is a guide to conduct. In this sense we speak of "a man of principles"; but in a scientific sense a principle is a universal relationship between cause and effect. To give a well-known example, the principle of Archimedes states that "when a body is immersed in a liquid it apparently loses weight and this loss of weight is equal to the

\* The author is referring to the threat against amphibious forces afloat that had carried the 6th US Army and which still lay near the shores of Leyte Gulf. See *Leyte, The Return to the Philippines*, United States Army in World War II, pp 89-92.—Editor.

weight of the liquid displaced." Now this principle is universally true for all times and gives the relationship between cause, the immersion of a body in a liquid, and effect, the loss of weight.

Knowledge becomes a science when its principles are discovered; and the more principles that are discovered, the more developed is the science. Thus alchemy remained a mass of knowledge until its principles were discovered, thereupon it became the science of chemistry. Palmistry, astrology, and phrenology cannot be termed sciences because they are not based on universal principles but merely on coincidences. To avoid a dissertation on a side issue, suffice it to say that war is an underdeveloped science.

Now the term "principle of war" can only have a logical meaning if it relates to the science of war and, since it relates to a science, the term must be used in its scientific sense—namely a statement of a universal relationship between cause and effects. *As our principles of war stand they are merely a list of nouns depending upon individual interpretation for their meaning.* They are as meaningless and unscientific as if Newton had stated, "Gravitation is a principle of physics," or Pasteur, "Nonspontaneous generation is a principle of microbiology."

As the principles of war stand they do not show the relationship between cause and effect, between their application and victory in battle. For instance, we cannot say that if offensive action is applied victory will result. We cannot even say that victory will be probable, because offensive action may not be the right principle to emphasize under the circumstances. Further it may even be that the applica-

tion of this principle will contribute to defeat. So much for the practical value of the principles of war as they stand today.

### The Art and Science of War

Another reason for the errors in our thinking on this subject has been our inability to distinguish between the art and science of war. Again I shall deal with this point very briefly. Art consists in doing, science in knowing. We practice an art whenever we do things; for example, playing games, playing music, painting, building bridges, and healing the sick. But in order to be better artists, we learn; that is, we study the sciences. A medical practitioner practices the art of healing, but to be a better artist he studies the sciences of physiology, anatomy, pathology, and chemistry. If he did not base his art on sciences which contain principles expressing relationships of causes and effects, he would have to adopt trial-and-error methods like a witch doctor.

Every art has its rules just as science has its principles. The rules of an art are guides to conduct which the artist may violate at his discretion. For this reason in the art of painting, for instance, we have the varied styles ranging from that of Michelangelo to Picasso. But a principle of a science cannot be violated since it is an expression of a universal relationship between cause and effect. This confusion of thought has persisted throughout military thinking with a few exceptions like Fuller who in his *Foundations of the Science of War* has ably clarified this distinction.

Fighting is an art because it consists in doing. But a general who does not base his art on the science of war is like a witch doctor. There have been no great captains of war in history

who did not study the science of war. This should be a sufficient answer to those self-styled "practical soldiers" who deride the study of the science of war.

### Logic and the Principles of War

The principles of a science have to be established by logical reasoning. It is not a matter of adding or subtracting from their number according to the whims of the ruling military pontiff as, for example, the recent addition of the principle of morale and administration to the principles of war. Field Marshal Montgomery in his *Memoirs* says:

*The first thing was obviously to get Interservice agreement to the fundamental principles of war, and I drafted out these principles as I saw them, and got them agreed by the First Sea Lord (John Cunningham) and the Chief of the Air Staff (Tedder).*

In light of what has been said, it is obvious that neither the art nor science of war can be advanced by individuals drafting principles according to their own lights without deriving them by the logical processes of deductive or inductive reasoning.

With the exception of the recent additions, the principles of war are mainly those evolved by Fuller in his *Foundations of the Science of War*. Fuller gave the start to the scientific treatment of this subject, but the limitations of these principles are that they are based on deductive reasoning.

Methodology is that branch of logic which deals with the uses of the various forms of reasoning, according to the subject matter, to discover truth. No one has determined the methodology applicable to the science of war. War is primarily an analytic science

whose principles should be derived by inductive not deductive reasoning.

### Conclusion

To avoid fallacy in our thinking on this subject we must clearly distinguish between the art and science of war and the spheres of the two. The art of war will have its rules which are guides to conduct, but the science of war will have its principles like all sciences which are universal laws based on cause and effect.

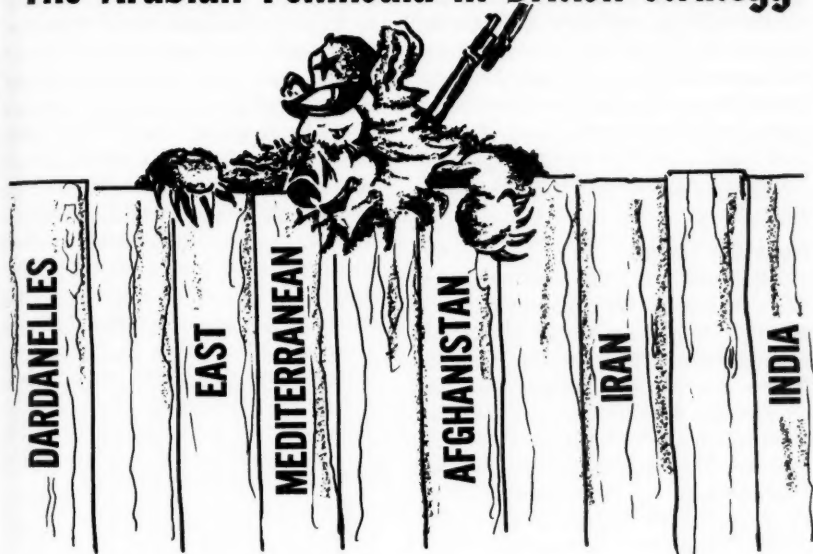
The principles of war can be discovered but have not yet been discovered. These principles can only be discovered by logical reasoning. They are not items to be added or subtracted according to the whims of individual opinions. The best logic for discovering these principles is inductive not deductive reasoning. However, it is realized that the complexity of the science of war makes this a difficult task.

Science is knowledge that is codified and systematized. To develop the science of war we need not only the general principles of war but also principles of particular aspects like strategy, tactics, and morale.

The present principles of war are of limited use because they are merely a list of nouns not expressed in terms of cause and effect as scientific principles should be. According to Marshal Foch in *The Principles of War*:

*The great discoveries of man proceed from empiricism; consider steam, electricity, vaccination, etc. . . . Genius, a gift of nature, creates by itself; this is art. Then comes work which takes up the facts, analyzes, classifies, establishes relations as between causes and effects, wherefrom logic, laws, that is science, are bound to result. The art of war does not escape that rule.*

# The Arabian Peninsula in British Strategy



D. C. Watt

**E**VER since Nelson destroyed the French Fleet in the Battle of the Nile in 1797 and Sidney Smith defended Acre to thwart Napoleon's grandiose plans for a Franco-Russian descent upon India, the Middle East has been important to Great Britain as the gateway to India. This gate she held open for her own traffic and closed against the attempts of other great powers to take over its control.

At different times most of the great powers of the past have threatened British control—France in the 1890's, Turkey in the 1914-18 war, Mussolini's Italy in the 1930's, and Nazi Germany in the 1940's, to name only a

few. But Russia's threat has remained consistent; a twofold one aimed on one hand at the Dardanelles into the eastern Mediterranean, and on the other through Persia and Afghanistan to India.

To meet the western threat, Britain first backed the old Ottoman Empire. When its obvious decay made this no longer adequate, she occupied Cyprus and built a base in Egypt at Alexandria. To meet the other more easterly threat, she made India the main strategic reserve for British troops outside Europe, and waged a constant struggle to counter Russian intrigues on India's borders.

*The Middle East is vitally important to British strategy because of the part it plays in maintaining Great Britain's strength in other areas*

Thus for Britain's strategic planners the Middle East always has presented a paradox. The gates lie to the south, overland through Syria to the Persian Gulf, by sea through Suez and along the Red Sea. But the keepers of the gates, since the main threat came from the north, were Turkey and Persia. All that was necessary in the south was to hold Suez and Egypt with it.

### Preemptive Strategy

Elsewhere the same strategy, preemptive rather than defensive, dictated policing the piratical sheikdoms of the Persian Gulf and the Arabian coasts, and the establishment of the appropriate naval and coaling stations from which this policing could be carried out. This same policy dictated the establishment of protectorates over these sheikdoms to prevent the other great powers from intervening. Thus Aden became the main British coaling station after Socotra and Mukalla both had been investigated. One by one the sheikdoms and sultanates on and off the Arabian coasts were brought under British protection.

The deterioration of Britain's position in the Far East in the 1930's and her naval weakness made it impossible for her to continue to maintain separate battle fleets in Far Eastern as well as Mediterranean and home waters. These deficiencies led British strategists to attach a new importance to the Suez route as the shortest way

by which the main fleet could be rushed to the new naval base at Singapore in the event of a serious threat to Britain's position in the Far East.

In 1947 the departure of British troops from India and the proclamation of Indian independence seemed to have removed the entire *raison d'être* from traditional British strategy in the Middle East. But the importance of India in traditional thinking was replaced in Britain's scale of strategic values by the oil of the Persian Gulf. This oil was both the main source of Britain's imported fuel and a considerable source of foreign exchange from which, for example, the cost of maintaining the British divisions in Germany as part of the North Atlantic Treaty Organization (NATO) shield could be financed.

The Korean War, Chinese guerrilla activity in Malaya, and the formation of the Southeast Asia Treaty Organization (SEATO) restored military importance to Suez. Moreover, two of the three possible routes by which troops and airplanes could be flown to Southeast Asia lay along the Red Sea or the Persian Gulf.

### Anglo-Egyptian Agreement

By 1958 Britain had lost control of the gates and had retired into the Mediterranean to the west and the shores of the Arabian Peninsula to the east. The Suez base was evacuated in June 1956 under terms of the Anglo-Egyptian agreement. The ill-conceived attempt in November 1956 to recover the lost position, after Colonel Nasser had nationalized the canal's management, failed for want of world support. With it went all hope of ever "reactivating" the Suez base.

In 1957 Jordan denounced her treaty with Britain, and the airfields at Mafraq and Amman were lost. In

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1958 Britain's last airfields were surrendered to the new leaders of the Iraqi revolution. Turkey and Persia remained firm allies in CENTO, a bulwark and a tripwire against direct Soviet aggression. But indirectly, Soviet and Chinese activity in Iraq, and still worse Soviet activity in the Yemen, appeared to have leapfrogged over CENTO and landed Communist influence on the shores of the Persian Gulf and the Red Sea.

This threat was still rather indistinct. More serious, the two independent Arab States of the peninsula apparently were led by this series of disasters to assume that Britain's collapse in that part of the world was complete, and that they could easily emulate Egypt. Saudi Arabia began backing the dissident Imam of Oman against the British protected Sultan of Muscat and Oman. The Yemen began inciting disorder within the borders of the Aden Protectorates. Britain's main strategic aim, the holding of the gate against hostile great powers, still was possible, but what had been the secondary aim, the preemptive control of the gate and its approaches, had been defeated.

### Developments

In the face of these developments Britain's strategic advisors still will make official play with the importance of the gate. They will argue that the air routes to Southeast Asia still can bypass the Levant, passing north through the CENTO countries before coming southward down the Persian Gulf, or running south through Libya and Khartoum to Aden. An example is the great importance set on the Royal Air Force (RAF) staging post at Gan in the Maldive Islands about which there was so much dispute with the

Maldivian Government in 1958-59. As for the sea route, they will say, Egypt still is bound to keep it open in time of peace; it is not new for Great Britain to be deprived of its use in time of war. Britain survived without it in 1940-43, and she will survive again.

Nevertheless, the loss of direct control over the gate has meant that Britain has had to abandon her role as the principal landpower in the Middle East in favor of her earlier role as an amphibious power. In practice this means two separate commands—one Mediterranean based on Cyprus, and one in Arabian waters based on Aden; one cis-Suez, one trans-Suez. The Mediterranean command still is concerned directly with the gate and its keepers, with strengthening CENTO, and possibly with action were the gate itself to be closed against Britain. But the trans-Suez command no longer is concerned with the Middle East as a through route. Its job is to maintain the preemptive policy of the past in the Persian Gulf and the Red Sea. Or, more baldly, it is to defend the British protected states of the Persian Gulf and the Aden Protectorates, both those that have oil and those that have not, against subversion from within or aggression from their independent Arab neighbors.

Pursuing this policy, British forces have fought two nasty campaigns in Muscat and Oman, and one, equally nasty, on the Aden-Yemeni border. The navy has staged at least one small-scale demonstration off Qatar. The trans-Suez command has been expanded and upgraded. Known officially as British Forces Arabian Peninsula, its commanding officer is now an air marshal. His command is unified, and his deputies come from the three services—an air vice marshal, a major

## BRITISH STRATEGY

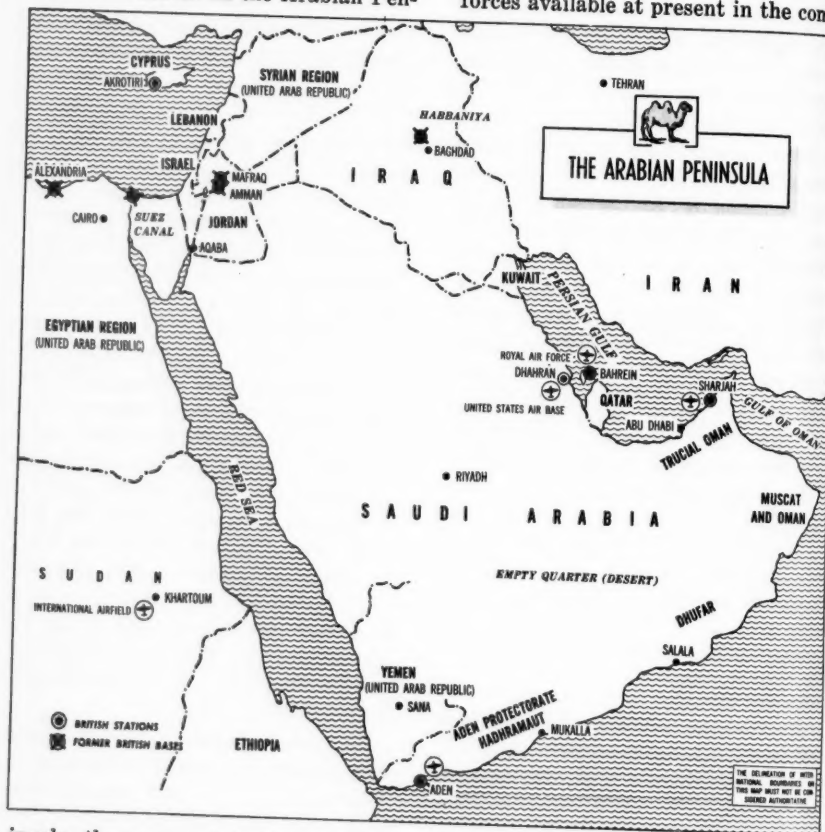
general, and, as flag officer, Arabian Seas, a rear admiral.

The command lies with an air force officer mainly because the air force has been responsible for internal security in Aden and the protectorates since the interwar years. In addition to British forces on the Arabian Pen-

insula, the command includes British strategic reserves in Kenya. It covered also the locally raised Somaliland Scouts until British Somaliland was granted independence in July 1960 and merged with Somalia.

The command is divided into three separate local commands, with a good deal of decentralization. One covers

Aden Colony and the Aden Protectorates from Aden. Another covers the Persian Gulf sheikdoms and sultanates from the naval and RAF stations on Bahrein and at Sharjah in the Trucial States. The third covers Kenya and the strategic reserves there. The forces available at present in the com-



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support work), and a sizable number of military transport planes. In dire emergency the navy's commando carrier, HMS *Bulwark* could come across from Singapore and troops of the Central African Federation be flown up from Rhodesia.

### Serious Threats

These forces are disposed to meet three separate threats: subversion in Kuwait, Bahrein, or Qatar, the British protected sheikdoms which are already major oil producers (in Kuwait's case, the major oil producer); Saudi aggressiveness against the Trucial sheikdoms of Abu Dhabi and Dubai, coowners with the Sultan of Muscat and Oman of the Buraimi oasis whose ownership Saudi Arabia claims, and Saudi encouragement of the dissident Imam of Oman against the Sultan of Muscat and Oman; and finally, Yemeni efforts to invade, disrupt, and subvert the western Aden Protectorate.

The presence of an infantry battalion and a naval squadron of three frigates at Bahrein counters the first threat. The ruling family in Kuwait so far has proved well-able to look after itself. In an emergency, troops could be brought in, if they were requested, from Bahrein. The frigates have a great deal else to do, in the traditional navy manner, besides what is pejoratively known as gunboat diplomacy. However, they have been used for this—as in the naval demonstration off Qatar in 1957.

The second threat was met by the formation of the Trucial Oman Scouts, a unit which was recruited locally and officered and trained by British officers seconded for the purpose. After the debacle which hit the Sultan of Muscat and Oman's levies in 1957, a similar force—the Muscat Scouts—was

formed with about 30 British officers and 90 noncommissioned officers. Even then the bulk of the fighting in 1959 in Oman was done by British troops. Two squadrons of the Special Air Service Regiment stopped off on their way home from Malaya in 1959 to storm the mountain fastnesses of the Imam, driving him to take refuge with those who had armed and financed him in Saudi Arabia. He is now in Cairo preparing, it is rumored, for a third round.

Since 1959 his activities have been confined to laying small American-manufactured mines on trails where the vehicles of the Muscat Scouts will explode them. There also has been desultory sniping at scout camps, and entirely imaginary claims of magnificent victories disseminated by Cairo radio and the People's News Agency of China. If the Imam should try to stage a third comeback, British troops could come in either from Aden or Bahrein. In the meantime a squadron of the Special Air Service Regiment has been training in Oman and a cavalry squadron has remained in Muscat, although its base is in the Trucial States.

### Soviet Equipment

The most serious potential threat, however, comes from the Yemen where nearly 30 years of intermittent negotiation has failed to produce an agreed Aden-Yemeni frontier. The Yemeni radio at Sana habitually refers to Aden as "occupied Yemen." In 1958 the Yemenis suddenly came into Soviet arms. They are known now to have about 30 *T-34*'s, some self-propelled guns, a quantity of field artillery and some *MiG-15*'s and *17*'s, plus one or two helicopters.

A Soviet mission also is said to be building them a port, although the



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place chosen seems to be a very odd one to say the least. Most of these weapons, except the artillery, are useless in the fantastic mountainous terrain on the Aden-Yemeni border, even if the Yemenis had anyone who could fly the planes or drive the tanks. However, they serve their purpose in overawing the tribesmen. Against them, Aden disposes an infantry battalion and a Royal Marine Commando, a squadron of tanks, and the aforementioned rocket-firing *Venoms*. These are extremely useful against tribal forts, although not quite so effective if, as happened in 1958, a British-held fort is besieged. There also is a certain amount of artillery. Local forces include the Aden Protectorate levies, the "armies" and guards of the various states, sultanates, and sheikdoms of the western protectorate, and in the east the Hadhrami Bedouin Legion and the Mukalla regular army.

Essentially, therefore, British military strategy in the Arabian Peninsula is defensive, a holding operation designed to "contain" the ambitions of Saudi Arabia and the Yemen. These feudal Arab States in British eyes are playing the Soviet game by attempting to take advantage of Britain's European and Asian preoccupations to undermine British authority and that of the states to which Britain has promised her protection. Soviet aid to the Yemen, which has always turned to Britain's major enemy in the Middle East (in the 1930's she turned to Mussolini), shows how interested the Soviet Union is to embarrass Britain here and pry loose her hold.

Britain's leaders, so it seems, after some initial indecision in the aftermath of Suez, are now determined to maintain their existing treaty obliga-

tions on and off Arabia's coasts, especially in the Aden Protectorate where a new federation gradually is being constructed out of the rivalries and petty jealousies of the individual sheiks and sultans. Aden is moving rapidly toward internal self-government. In Britain's eyes, this part of the world is important because of the part it plays in maintaining Britain's strength elsewhere—in CENTO, SEATO, and NATO. Compared with this the air routes and staging posts are secondary in importance.

### Amphibious Capabilities

In methods, Britain's strategic planners have gone back to the amphibious warfare of the 18th and early 19th centuries. The troops are lightly armed but extremely mobile, and steps have been taken to build up a troop-carrying wing sufficiently strong to be able to move sizable bodies of troops from one point to another of this farflung command.

At the same time, the presence of the naval amphibious squadron of tank-landing ships and of the 45th Royal Marine Commando means that the older forms of amphibious warfare are not being neglected. The main weakness is one common to the whole British Army—the lack of air freighters capable of carrying heavier items of arms and equipment. For the purposes of British strategy in the Arabian Peninsula, however, this is less important than in Europe or the Mediterranean, where the recent exercises in Libya were held to show this point most markedly.

It is easy to represent Great Britain's activities and strategic preoccupations in this part of the world as being colonialist or imperialist and thereby implying that they are not

such as the rest of the Free World can either support or approve. While this is not an essay on the political sides of Britain's presence on the shores of Arabia, it is worth pointing out that neither Saudi nor Yemeni rule is anything but feudal in structure. Neither of these states has exercised sovereignty in the last 200 years or more in the areas they now claim.

Britain has obligations to the local rulers which she is bound to fulfill, and responsibilities in Aden which she is doing her best to live up to. None of this can be done while tension rules and her neighbors think that she

is weak and her weakness exploitable.

To develop feudal, seminomad states with largely Bedouin populations into states that can take their place in the 20th century—if only alongside states as small as Liechtenstein, San Marino, Andorra or Monaco—cannot be done without peace and security. No development of this nature could be expected if they fell into the hands of the Yemen. Kuwait and Bahrein are rather different; but there still is plenty of room for development here. And neither Britain nor Western Europe can afford to see Kuwait, Bahrein, or Qatar pass into unfriendly hands.

... I intend [to focus] primarily on the military aspects of this strategy—although I fully recognize the importance of the many nonmilitary factors involved. Since forward strategy means different things to different people, I'd like first to define what I think it means. By forward strategy, I mean a plan to dispose our military power so that we, together with our allies, could meet and repel promptly Communist military aggression if it occurred along the periphery of the Free World as well as anywhere else it might occur. Preparations to execute this strategy include, among other measures, the positioning of military forces overseas together with development of a capability to project our military power rapidly to areas beyond our borders when it becomes necessary.

*General Lyman L. Lemnitzer*

# ALASKA

## Gibraltar of the North



Colonel Willard Pearson, *United States Army*

**T**HE airplane flying the polar routes initially focused attention on the military importance of the Arctic regions. "Billy" Mitchell was the first to expound on the strategic importance of the polar routes. This interest has heightened with the development of the long-range, land-based missile. More recently the nuclear-powered submarine cruising in the Arctic Ocean as a mobile missile base has brought the strategic importance of the Far North into sharper focus. Should there be a general war, these weapons—jet aircraft, land-based missiles, and missile carrying submarines—will transform the Arctic Ocean into the Mediterranean of world war III.

The gateways to the Arctic, the Be-

ring Straits on the west, the only sea link between the Arctic and Pacific Oceans, and the Norwegian Sea on the east, correspond to the Straits of Gibraltar and the Red Sea in the Mediterranean. Alaska, the Gibraltar of the North, is separated from Russia by 55 miles of water. The United States Little Diomed Island and USSR's Big Diomed Island in the Bering Strait are less than three miles apart.

The strategic significance of the northern regions has not been fully appreciated considering post-World War II weapons now available—and potential new developments in weapons, transportation, communications, and nuclear power.

The area of northern operations in-

*As far back as the Napoleonic Wars, nations have failed to prepare for northern operations. A realistic program started now would ensure the Army's readiness to fight in this strategic northern area*

cludes both the Arctic and the sub-arctic. Field Manual 31-71, *Northern Operations*, defines the boundary as the 50 degree isotherm, that is, a line north of which the mean temperature for the warmest four-month period of the year is under 50 degrees Fahrenheit (Figure 1). It includes all of Alaska, Canada, a part of the upper

A glance at a polar projection of the globe shows that Europe, Asia, and North America come closest together at the North Pole (Figure 2). The shortest distances between the principal population and industrial centers of Eurasia and North America pass over or are adjacent to Alaska, Canada, or Greenland. Note

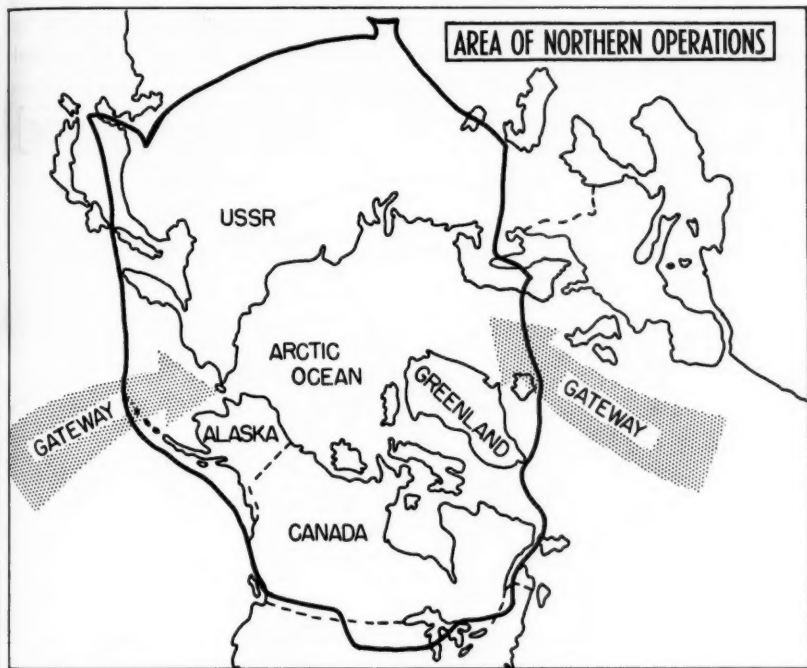


Figure 1.

midwest, Greenland, the upper Scandinavian Peninsula, 65 percent of Russia to include all of Siberia, and half of Korea.

Colonel Willard Pearson is Assistant Chief of Staff G3, United States Army, Alaska. His most recent article, "Support Command or Trains Organization for the Division?" appeared in the April 1960 issue of the MILITARY REVIEW.

the difference in distance from the center of the US to Moscow via the great circle route versus the Polar Route.

Another comparison is shown in Figure 3. Again we see that the distance from the center of the United States to Moscow via the Polar Route is roughly 4,500 miles, whereas from Thule, Greenland, to Moscow is a mere 2,300 miles. An intercontinental bal-

## GIBRALTAR OF THE NORTH

listic missile (ICBM) located in Fairbanks, Alaska, having a range of 5,000 miles could easily engage targets in most of Western Europe, Russia, and China. A missile firing from Alaska into China has a significant range advantage over a missile located on the west coast of the US firing on the same target.

The *Polaris*-equipped submarine, operating from Alaskan bases, (Figure 4) and using the Arctic Ocean as

sia to include the Trans-Siberian Railroad. From the Barents Sea the *Polaris* missile can fire over Moscow and hit the Black Sea. A fleet of *Polaris*-equipped submarines operating in the Arctic would be able to dominate European battlefields more effectively than the aircraft stationed on Mediterranean bases were able to do in World War II.

These shorter distances to the heartlands of the US and Eurasia



Figure 2.

an underwater airfield to achieve concealment, dispersion, and surprise, can launch missiles south into Eurasia generally as far as 50 degrees North latitude. This would include the British Isles, France, northwest Europe to include the Scandinavian Peninsula, and a huge chunk of Rus-

from Arctic bases ensure greater accuracy for missiles, heavier payloads, less time in flight, as well as fewer failures in flight. Greater accuracy and heavier payloads reduce the overall force requirements. The reduction in flight time to target increases the chance of achieving surprise and re-

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duces the time a missile is subject to attack. It also reduces the time the enemy has to react to a surprise attack.

World War II began with a sneak attack on Pearl Harbor, which was a naval bastion on the US's defense perimeter in the Pacific. The range and destructive power of modern weapons provide an enemy with the means

from Eurasia. To get maximum warning the curvature of the earth requires us to locate our warning stations as near the top of the world as possible in order to look down on the other side (Figure 5). This schematic drawing shows the point where radar located in the US might first pick up a missile launched from Eurasia versus the point of pickup when the radar is lo-

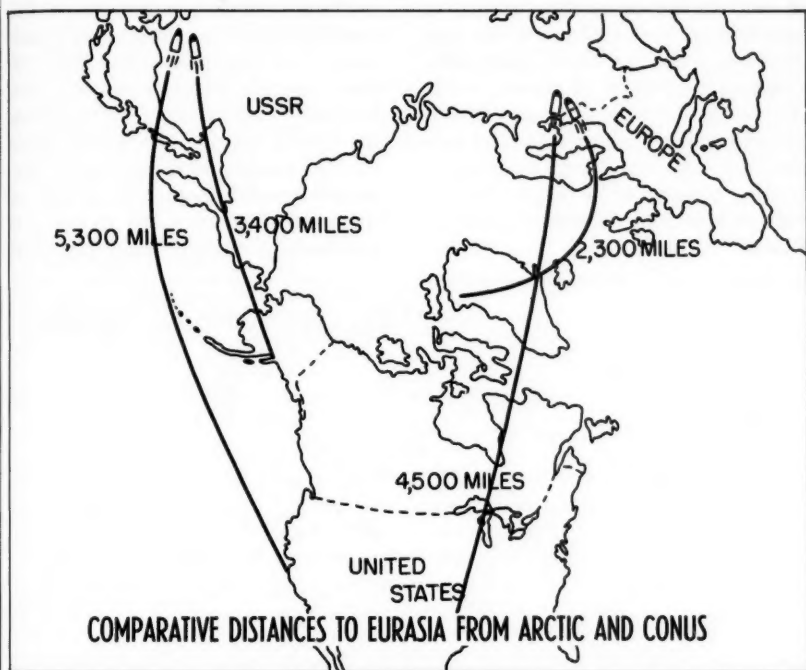


Figure 3.

of initiating a surprise attack of a different version. Instead of striking at a strong point on the perimeter, an enemy could initiate a missile attack on the US industrial heartland concurrently with or followed by ground and air attack in other overseas areas.

It is quite obvious that we must secure maximum warning of an air, missile, or satellite attack launched

ated in the Arctic. The Distant Early Warning (DEW) Line was located along the Arctic Circle for this reason. For the same reason our Ballistic Missile Early Warning System (BMEWS) and *Midas* early warning satellite sites are being located in the Far North. These BMEWS and *Midas* sites become strategic targets because of their limited number, importance in

the early days of a general war, and the long lead time required to replace them if destroyed. The location of these strategic targets on our northern outposts obviously increases the strategic significance of these outposts.

These reduced distances via the Polar Route bring the strategic importance of the Far North into sharp focus when viewed through the lens of our rapidly developing ability to travel above, across, or under the Arctic. Thus in the Far North, geography combines with range of modern weapons to highlight the strategic importance of the area as an advanced outpost for early warning, interception of air, missile, or satellite attacks, and for launching attacks or counterattacks.

Since the end of World War II, US rights in many bases overseas have been either restricted or revoked outright. Even our position in the Caribbean, once considered impregnable, is under political attack.

Forces in Alaska, on the other hand, are on US soil. They are not subject to pressures by foreign political complications.

There is another important political consideration from the cold war standpoint. Our European allies fear that their countries may become a nuclear battlefield in war between the US and the USSR. Should the Soviet Union, through nuclear blackmail and a spectacular breakthrough in missilery, coerce our allies to adopt a policy of neutrality, the USSR could launch an

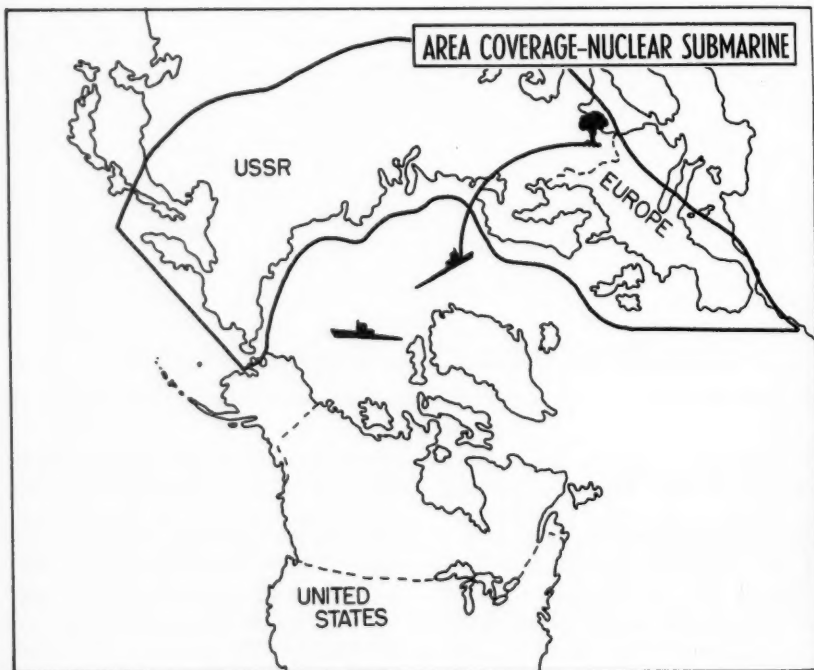


Figure 4.

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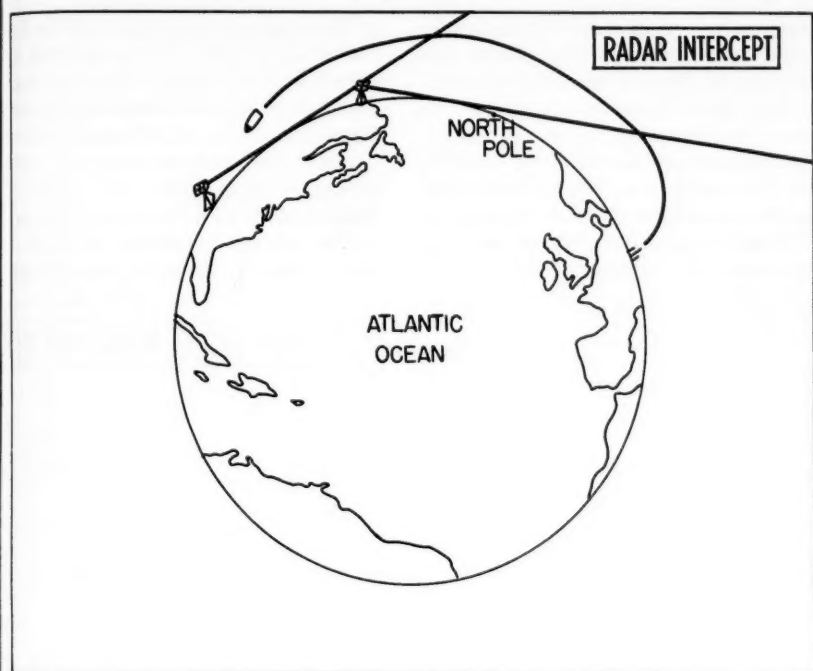


Figure 5.

attack on the US from Siberia, and by passing over Alaska not involve any other country except possibly Canada.

A modern power must protect its economic potential and mobilization base in nuclear war. A nation will seek to fight a war as far removed as possible from its heavily populated and industrialized areas because of the destructive power of nuclear weapons. The undeveloped areas of Alaska permit the dispersion of military forces away from heavily populated and industrial centers. This not only provides passive protection to our retaliatory forces but also reduces the vulnerability of our industries and civilians to missile counterbattery fire and radioactive fallout.

Lack of adequate transportation fa-

cilities, limited lines of communications, undeveloped local resources, and heavy maintenance requirements increase the cost of military operations in the Far North. In Alaska, however, expenditures for our military forces contribute to the long term economic development of the area. Funds spent in the 49th State are retained in the US economy rather than being spent in overseas areas where political affiliations are subject to change.

The drain on US gold reserves caused by stationing large forces in foreign countries was dramatically illustrated by a Presidential decision, in November 1960, to evacuate a large number of military dependents from overseas bases. This directive does not apply to Alaska. Higher ini-

## GIBRALTAR OF THE NORTH

tial costs in Alaska are offset by the political stability which assures retention of bases over the long term.

Should an enemy secure even a limited beachhead on the bleakest coast of northern Alaska, he could proclaim to the world that US territory had been successfully invaded. Invasion of US soil would adversely influence the uncommitted nations in the early

The strategic importance of the Far North arises from its geographic location on the shortest route between North America and Eurasia. This military significance is increased further by important political, economic, and psychological factors.

### Implications to the Army

The Army's objective in war is destruction of the enemy and occupa-



Figure 6.

stages of a general war. An invader would gain great psychological and propaganda value from even nuisance raids on US soil. Remember the panic and hysteria that developed on the West Coast following the attack on Pearl Harbor at the outbreak of World War II? The political implications and public opinion would develop pressures for an early counterattack.

tion of the enemy's heartland. Before the decisive battle for the heartland is fought, there will be strategic outposts which must be first seized or neutralized (Figure 6).

In World War II, for example, the Japanese considered capture of New Guinea strategically necessary. Why? This island became a strategic base for blocking the principal United

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States overseas supply route into Australia, as well as a staging area for attacking that continent.

On the other side of the globe the Allies and the Axis were at the same time fighting for control of the deserts of North Africa. The strategic North African coastland provided bases for ground, sea, and air forces to control the Mediterranean as well

winter (environmental) warfare on strategic outposts years before fighting the final battle in the more temperate climate of Europe. Similarly, in any future war between the United States and a power on the Eurasian land mass, significant air, sea, and land battles will be fought over the Arctic basin as the opposing forces contest for this strategic outpost.

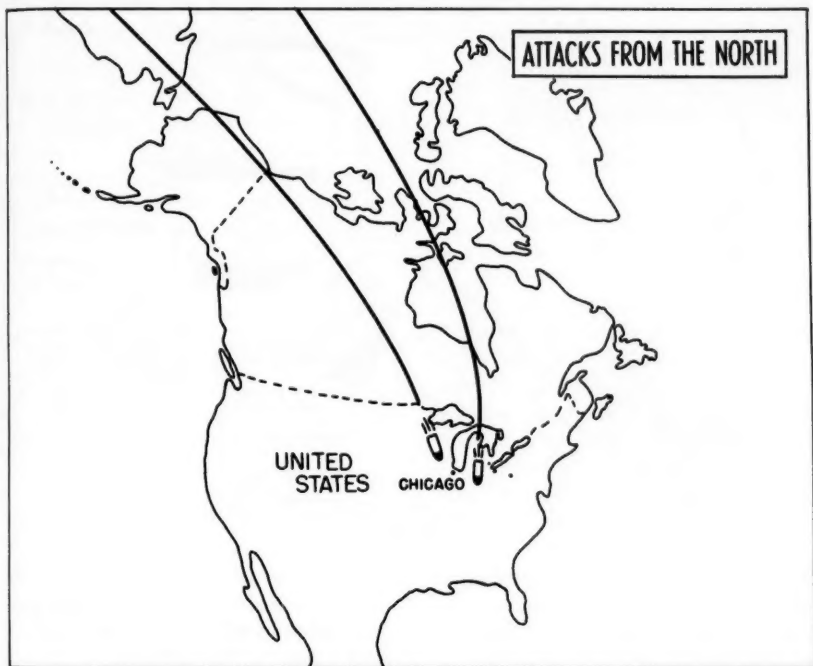


Figure 7.

as staging areas for attacking the "soft underbelly" of Europe.

In the Far North the Germans captured Norway and attempted to cut the Allies' northern sea route to the Soviet Union. The Japanese likewise struck in the north and attacked the Aleutian Islands.

In World War II major forces were deeply engaged in jungle, desert, and

In the early stages of a general war opposing forces would strike swiftly to destroy or neutralize each other's military potential in the Far North; to protect their northern flanks by dominating the Arctic regions; and to develop offensive bases to support by missile fire invasions by land, sea, and air of the enemy's heartland. These invasions might originate in

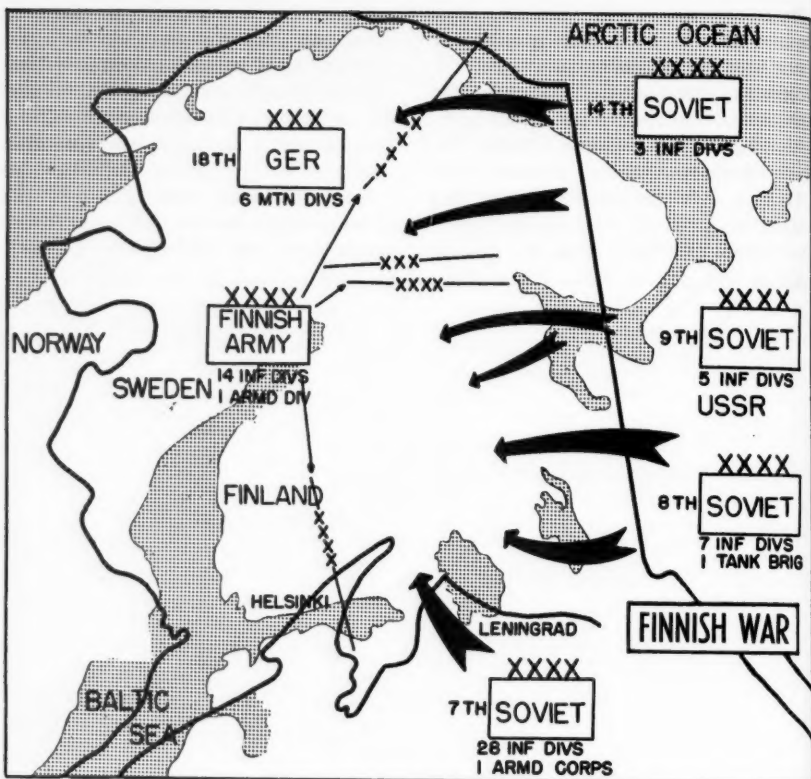


Figure 8.

the Arctic or in any area contiguous to the enemy's homeland.

Possession of the Arctic Basin by an unfriendly power jeopardizes the security of the US. For example, in the initial phases of a general war it would be of great importance to neutralize missiles located on the Arctic rimland firing megaton weapons on the Chicago-Pittsburgh-Buffalo industrial complex in the Continental United States (CONUS) (Figure 7). It is doubtful if this neutralization could be accomplished successfully or completely by bombs or missiles alone. Recall in World War II, German V-2

rockets, firing on London from the northern coast of Europe, were neutralized only after the Army overran and occupied the sites.

The Army as well as the other services must be prepared to capture or destroy the enemy's airfields, missile bases, naval stations, mobile missile launchers, logistical complexes supporting the enemy's strategic and tactical forces, and early warning radar sites.

The enemy likewise will attempt to neutralize our military potential in the Far North. Initially, he may attempt this with nuclear missiles. He

may supplement his missile fire by limited airborne and seaborne attacks, submarineborne patrols landed at night, and guerrillas parachuted at night into sensitive areas or by major airborne and amphibious attacks to seize critical ports, bases, and centers of communications. Our military installations must be defended against all forms of attack. A large measure of this task will fall to the US Army.

### Army Capability

The implication to the Army is obvious—the Army must be prepared to conduct offensive and defensive operations in the Far North. This capability should exist now to provide swift reaction in the early stages of a general war when control of our strategic outposts is essential. As the final phases of the war develop, operations will shift to the enemy's heartland where less rigorous climate and terrain may or may not prevail.

Can large forces conduct offensive and defensive operations in the Far North? Consider the Finnish War for just a moment.

The Finnish-Russian War was fought generally between 60 degrees North latitude and the Arctic Ocean (Figure 8). In 1944 there were six German divisions, 15 Finnish and 73 Soviet divisions, or a total of 94 infantry, armored, and mountain divisions (not all shown on figure) committed to this area. Superimpose Alaska on this battleground and we find that 60 degrees North latitude also passes through Seward, Alaska. Harsh climate, mountainous terrain, dense forests, and lack of surface communications will not bar troops from fighting when the strategic prize is worth fighting for.

In improving its operational capabilities to fight in northern latitudes

other important advantages would accrue to the Army. These should not be overlooked:

1. Enhance the Army's combat capabilities to operate in the more temperate zones. Consider winter warfare in the mountains of Western Europe, Northern Italy, Greece, Turkey, the Urals in Russia, the Himalayas separating China and India, and the mountains of Korea. The problems in these areas associated with extreme altitudes, weather, and climate; the undeveloped transportation and communication; and remoteness from source of supply are identical with problems encountered in the Far North.

2. Improve the Army's ability to conduct a limited war. Experience of the last decade shows that the most likely locales for limited wars are the undeveloped countries around the periphery of the Soviet Colonial Empire. These countries have primitive communications facilities. By improving our ability to operate over the undeveloped areas of the north, the Army will enhance its ability to fight limited wars in other undeveloped areas.

3. Provide an ideal area to test new equipment. Alaska has the terrain, climate, and environment found to a large degree in the northern areas of the Eurasian land mass. It is probable that major ground operations will at some future date be conducted on terrain similar to that found in the 49th State. An appreciation of mobility, firepower, and communications problems that exist in the north is essential for the planning and development of material to be used by the Army of the future. If we can solve the problem of mobility in Alaska, where we are restricted and canalized

by weather, terrain, and lack of communications, we have taken a great stride forward in solving the larger problem of the Army, that is, mobility on the devastated nuclear battlefield.

Considered alone, these advantages provide adequate justification for improving the Army's ability to fight in northern latitudes.

### What Kind of Program Is Needed?

Let us step down from the stratosphere of global strategy and consider a down-to-earth program for improving the Army's operational capability in the Arctic. The following three-point program is recommended.

Greater research and development (R&D) effort and year-around testing of materiel, under both winter and summer conditions, is the first step.

The most promising area for improving the Army's operational capabilities is the development of specialized equipment. We need to increase the tactical mobility of the combat units and their necessary logistical support units. To do this, special equipment is needed. B. H. Liddell Hart in his book, *The Red Army*, states: "Hitler lost his chance of victory against Russia because the mobility of his Army was based on wheels instead of tracks." Tracked vehicles with "year-around" mobility are needed. The ideal tracked vehicle will negotiate over the snow in winter, through the water in the spring breakup, and across the muskeg and rocks in summer. The ultimate vehicle may well be of the "zero ground pressure," "air cushion" type. Allied with this problem of ground mobility is the need to develop navigational aids and techniques for movement

across the uncharted wastelands of the north.

Exploitation of the potentialities of air mobility for moving troops, equipment, and supplies promises to be a major factor in establishing supremacy in the north. We must develop equipment and techniques to capitalize on the mobility of Army Aviation.

Reduction in the diversity, volume, and weight of the soldier's clothing and equipment is a requirement for soldiers operating in any theater of operations. It is of special importance to the soldier in the north because of the heavy clothing worn and the difficulty of moving over rugged terrain under adverse weather conditions. Progress in this area not only will enhance soldier morale and efficiency but also will increase individual and unit mobility.

Northern operations will be characterized by dispersion of units over vast areas creating a communications problem. For adequate control of these units, radios of greater range, reduced weight, and increased reliability are needed. Ways must be found to increase battery life in subzero weather.

Other important areas for research are employment of nuclear weapons, chemical, biological, and radiological warfare, adequacy of conventional weapons, operational rations, resupply techniques, and maintenance of all types of equipment.

### Training

More rugged, realistic training in northern operations is required. Past maneuvers in Alaska have provided outstanding training for participating units from CONUS. These maneuvers have been held in south and central Alaska. These exercises must be made progressively more difficult

by conducting them in the Brooks Mountain Range, in the Tundra of northern Alaska, and along the Arctic coast.

The usual winter maneuvers reveal the obvious or superficial shortcomings, but are not long enough to uncover more fundamental weaknesses and strengths in personnel, equipment, and doctrine. Annual expeditions of one or more month's duration should be conducted during the winter and summer. Movement of tactical units over the old pioneer sled trails from Fairbanks to Nome, from Nome to Point Barrow, and from Point Barrow to Fairbanks through the Anaktuvuk Pass in the Brooks Range is needed. Why not practice overland movement from Alaska across northern Canada to Greenland? The Army should seek to develop trained men and equipment to retrace Admiral Peary's route to the North Pole on a recurring basis.

A hard core of expert mountain climbers must be trained. Training can be conducted on the many mountains in Alaska with ascent of Mount McKinley as the graduating exercise.

Expeditions of this type would provide:

1. Superior training in land navigation, communications, resupply procedures, physical conditioning, living in the field, and small unit leadership.
2. Rugged tests of equipment under prolonged stress more nearly approaching combat conditions.
3. Realistic tests of tactics and techniques.

#### **Personnel Problem**

Improved personnel procedures, which will attract, motivate, and retain individuals trained in cold weather techniques, are needed.

Quality rather than quantity must

be the goal in training personnel. With limited personnel ceilings and further cuts in prospect, a small number of highly trained individuals and units should be developed to provide the nucleus for rapid expansion during mobilization or "as forces in being" for immediate deployment to key strategic areas in event of war.

This can be achieved as follows:

1. Designate the two battle groups in Alaska and two Strategic Army Corps (STRAC) battle groups in CONUS as "Ski and Mountain" units. The words "Ski and Mountain" should appear as part of the unit's designation to identify it clearly as a special unit. No major changes in organization would be required. The battle groups in Alaska would be issued special equipment for mountain operations. These units already have the special equipment for cold weather operations. STRAC units would stockpile necessary equipment in the states.

These units would conduct annual maneuvers and expeditions in the Far North along the lines suggested in the preceding paragraphs. The "Ski and Mountain" battle groups would participate in these maneuvers on a recurring basis to attain the highest degree of individual and unit proficiency and *esprit*.

2. Provide qualification badges for expert skiers and mountaineers. These badges are comparable to and in some cases more hazardous and difficult to attain than those currently authorized for vehicle driving, marksmanship, parachuting, rangers, and explosive disposal. These badges, which are common in European armies, would provide incentive, develop pride, and facilitate mobilization and peacetime assignments to the "Ski and Mountain" units.

3. Expand and publicize the current program of screening incoming replacements having experience in the National Ski Association and the American Alpine Club, and assigning them to Alaska upon completion of their basic training.

4. Permit repetitive assignments of personnel possessing skiing and mountaineering skills to Alaska, or to other areas where these skills may be applied.

These procedures will attract, retain, and motivate soldiers to become professionally skilled in the techniques of northern operations.

The broad over-all program is feasible and practical. A stepup of the R&D program in Alaska can be financed by diverting some funds from the research program on the Polar Ice Cap. With the acquisition of Fort Wainwright (formerly Ladd Air Force Base, near Fairbanks, Alaska), facilities are immediately available to support increased R&D activities in Alaska. This new Army installation was dedicated by the Secretary of the Army on 2 January 1961.

I am confident that the training program and personnel control procedures discussed here can be adopted within present personnel ceilings. The number of troops participating in the current maneuver program can be reduced to permit execution of the revised program within the present budget.

Examples of failures to prepare for northern operations can be found from the Napoleonic Wars to the Korean Conflict. We must not fail in the future. Adoption of a forward-looking, realistic program will ensure the Army's readiness to meet the challenge of operating in the Far North.

### Conclusion

The Far North is of great military significance in the missile age, particularly as a strategic outpost in the initial stages of a general war. It comprises a large section of North America and Eurasia.

Opposing forces will attempt to neutralize each other's military potential in the strategic outposts of the Arctic. In the final analysis, this will be accomplished only when the Army forces occupy the ground.

The Army must embark on a program to improve its operational potential in the Far North—a realistic program that will prepare the Army to fight at any time and any place in the northern areas.

Alaska can serve as the Army's testing and training ground to achieve the operational readiness objective.

Alaska, the Gibraltar of the North, is destined to play an increasingly important role in the strategic planning for the defense of the Free World.

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It is known that the Communists are expending great energy in learning how to overcome the natural barriers of the Arctic and polar regions and we know the Reds will not hesitate, if need be, to employ their combat forces in this environment.

*Lieutenant General Arthur G. Trudeau*



## SOVIET ACTIVITIES IN UNDERDEVELOPED AREAS

Slavko N. Bjelajac

**T**HE Soviets admit the possibility of temporary agreements and alliances with the bourgeois-liberation movement in colonial countries. An indispensable condition for such a union is nonresistance of the *bourgeoisie* (persons of middle rank having private property interests; the midstrata of society opposed to the *proletariat* or working class, as viewed by the radical Socialists) to communism.

Lenin has said:

*We as Communists must and will support bourgeois liberation movements in the colonial countries in those cases where these movements are genuinely revolutionary and their representatives do not prevent us from*

*training and organizing the peasants and exploited masses in a revolutionary spirit.*

Stalin in a speech to the Central Committee and Central Control Commission stressed that in the colonial and dependent countries "the national *bourgeoisie* may at a definite stage and for a definite period support its country's revolutionary movement against imperialism." He regarded any bourgeois-democratic revolution not as an end in itself, but exclusively as a transitory stage which must inevitably be followed by the Soviet-type revolution.

The foregoing principles were prerequisite for the creation of a "united front" in the colonial and dependent

***The Soviets regard their friendly ties with national-bourgeois governments pursuing a policy of neutrality as temporary. Their ultimate goal is the assumption of power by the proletariat***

countries with the goal of ensuring that the Communists alone came to power. "A united front," Stalin insisted, "may be of revolutionary importance only in the event or on the condition that it does not hinder the Communist Party from carrying out its own independent political and organizational work . . . organizing the workers and peasants and thus preparing the conditions for the hegemony of the proletariat."

In the struggle for the liberation of the colonies and dependent countries from imperialism the task of the Communists is "to join the revolutionary elements of the *bourgeoisie* and peasantry against the bloc of imperialists and conciliatory elements in order to wage a genuine revolutionary struggle for liberation."

Applying this doctrine, in the Asian countries the Communists have endeavored to prevent the nationalists from coming to power and have waged a revolutionary struggle for the victory of communism. However, developments in the various Asian states outstripped the Kremlin's program. Turkey did not become Soviet. India and Burma became independent by peaceful means contrary to the Communist doctrine that rejects peaceful agreements with "colonizers."

Never abandoning the struggle to bring Communists in these countries to power, the Kremlin was anxious to draw these countries into the neutral camp in order to detach them from the West. This fact became clear

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after the Bandung Conference, which brought to light the role of new independent Asian states in world politics.

## New Interpretation

The 20th Party Congress in 1956 gave a new interpretation of the role of national *bourgeoisie* in colonial countries. It was admitted that India, Burma, Indonesia, Egypt, and other countries had gained their sovereignty under leadership of the national *bourgeoisie*, but also established that there were differences in principle between the gaining of sovereignty under the national *bourgeoisie* and gaining of independence under the proletariat, particularly with regard to the final aims of the liberation movement.

The role of national *bourgeoisie* was admitted to be progressive, but not an end in itself. The proletariat was, as earlier, considered to be the only consistent fighter for national and social liberation. This reveals that the change in the Soviet attitude toward the national *bourgeoisie* who came to power in Asian countries was essentially tactical in nature.

Soviet political doctrine still maintains that "the leader of the national-liberation movement can only be the proletariat, the only consistently revolutionary class force of which is based on the broad masses of peasants."

The Party Central Committee magazine *Komunist* states that:

*Bourgeois statesmen in the countries of East are . . . playing straight into the hands of the imperialists by their persecution of the Communists and by their anti-Communist outcries; and that whoever raises a hand against the Communists is in fact at*

tacking the national-liberation movement in the East as a whole willy-nilly furthering the evil cause of colonialism and imperialism.

On further political development of countries in which the national bourgeoisie has come to power, the Soviet doctrine was expressed by Khrushchev at the 21st Party Congress:

*After the colonizers have been driven out, and when national tasks have been mainly solved, the peoples seek an answer to the social problems advanced.*

This means that after the liberation from colonial dependence the people's struggle must continue and be directed against the national bourgeoisie in power which is holding up social reforms.

The statement of Khrushchev did not imply a change in Soviet policy as regards the problem of cooperation with the national bourgeoisie; it only demonstrated the temporary nature of such cooperation. These will play their role and go.

### **Soviet Cooperation**

The policy of Soviet cooperation with national bourgeoisie of the Asian nations is the same, on a smaller scale, as the coexistence of the Communist world with the Capitalist. Soviets consider them a temporary phenomena. In the case of Egypt, for example, the Soviets have no intention of breaking off economic ties with the United Arab Republic because of Nasser's opposition to communism. Instead of tactics of sympathy for the national bourgeoisie in Egypt, the Soviets have switched to their basic and original doctrine of "the proletariat as the only class capable of achieving the final liberation of Egypt."

Expressing their political doctrine

regarding African countries, the Soviet specialist in African affairs, I. I. Potekhin, writes:

*The colonial regime is replaced by the authority of the national bourgeoisie or even the local feudal lords, and then the economic dependence of a country on foreign capital is maintained for some time, even for a prolonged period.*

He admits that in North African states the national bourgeoisie is playing the leading role in the national-liberation movement, since its interests conflict with the dominance of the foreign monopolies.

In those African countries with a predominantly Negro population, the Soviets have no intention of concluding an alliance with the national bourgeoisie, for these, the Soviets feel, are more likely to come to terms with colonizers and imperialists and are incapable of achieving social progress. Here, the Soviets are doing their utmost to bring to power the extreme leftwing and pro-Communist elements.

### **Use of Force**

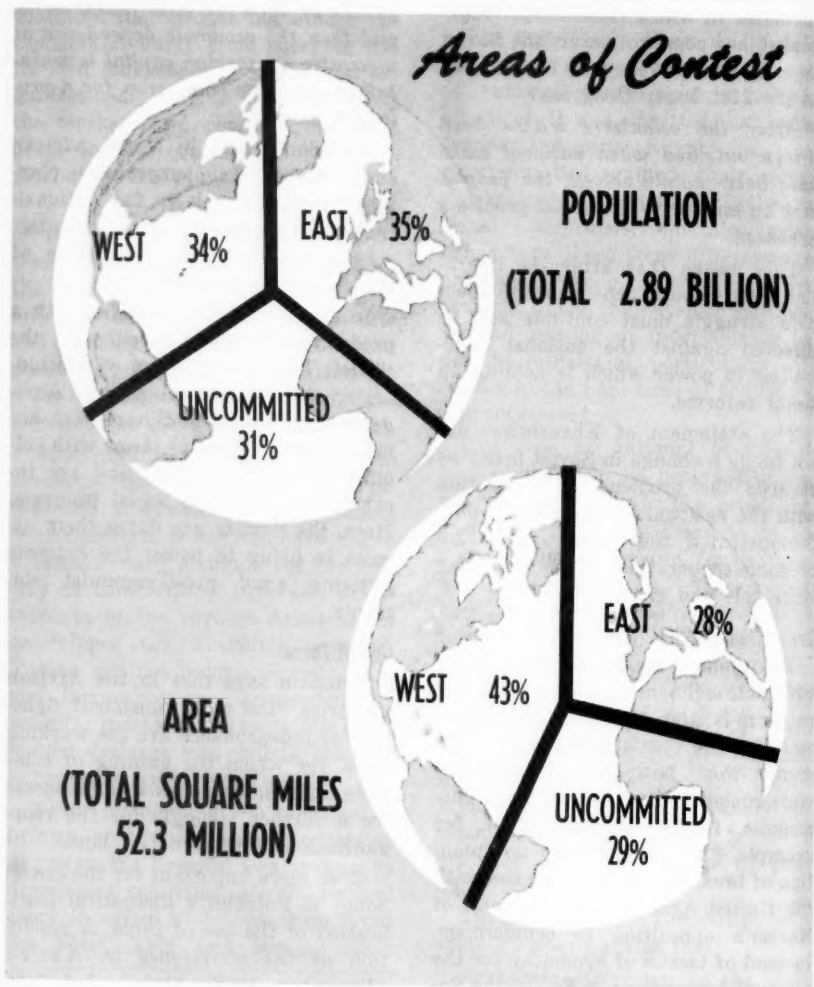
Potekhin says that in the African countries "the most consistent fighters for independence are the working class, for whom the gaining of complete independence opens up prospects for a further struggle for the reorganization of their native land."

Even more important for the Soviet policy is Potekhin's theoretical justification of the use of force. A resolution of the conference in Accra (December 1958) stated that "the conference of the peoples of Africa in Accra supports to the full all fighters for freedom, both those who use peaceful methods, resistance without the use of force and civil disobedience,

and all those who are compelled to answer force with force."

The path for the transition to a Soviet-type revolution via the stages of a national and bourgeois-demo-

Based on these statements of Soviet policy and the context of their pronouncement, it may be concluded that the Kremlin's strategy and tactics are flexible and adjusted to fit their tar-



cratic revolution is regarded by the Kremlin as unsuitable for the colonial states of Africa. These states can jump into socialism of the Soviet type bypassing the Capitalist stage.

get area and situation; the Kremlin's final goal though remains the same.

The Kremlin is willing to sacrifice to a considerable degree the interests of the Arab and Asian Communists in

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the countries in which neutrality is important to the Soviets. On the other hand, it will support and encourage them covertly as much as it can.

While the Soviets are compelled to take into consideration the national *bourgeoisie* of India, Indonesia, Burma, the United Arab Republic, and Iraq, they do not have to pay any attention to the national *bourgeoisie* of the African countries. Here, the Communists are banking on the working class and peasantry.

### Neutral States

In the states that are pursuing a policy of neutrality the Soviets will rely more on underground activities than on open acts or on critical statements which may be interpreted as hostile. Sapping the governments by Communists within and a silent preparation of the masses for a revolution may be the main goals during the honeymoon of neutrality.

The Soviets regard their friendly ties with those national-bourgeois governments pursuing a policy of neutrality as a temporary alliance; the doctrine that the proletariat is the only consistent fighter for national and social freedom remains in force.

Soviet attitude toward national bourgeois elements in colonial states of Africa will remain negative until these come to power or until they offer political and other support to the Soviets; a support leading toward the end of colonial rule over that country. In such states the Soviets will continue to support, with increased intensity, the extreme leftwing and pro-Communist groups opposed to national-*bourgeoisie* and colonial power. Preparation of resistance, uprisings,

and revolts by the Soviets will continue in these states.

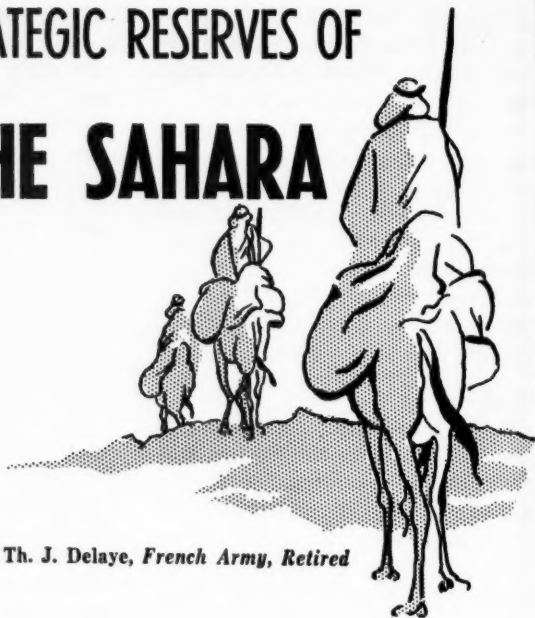
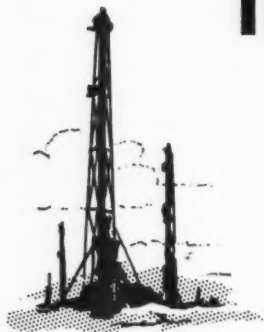
In newly emerging independent nations of Africa and Latin America, the Soviets will support the Communists and extreme leftwing elements and encourage them to use force. This is the Soviet plan supported by Communist China and the satellites. In a communique on a meeting of Communist leaders in Bucharest, it was asserted that "one must also base oneself on the possibility of the working class gaining the victory of the Socialist revolution by nonpeaceful means." Che Guevara in his book, *La Guerra de Guerrillas*, intended for the Latin American public, advocates the Soviet doctrine of use of force.

Soviet doctrine advocates that the African nations jump into Soviet-type socialism, bypassing the so-called Capitalist stage. This is undoubtedly the most appealing doctrine to the uneducated and often still savage masses of Africa. Combined with the doctrine of use of force it may create a most dangerous proletarian force composed of semieducated, noneducated, and savage people capable of carrying blindly whatever may be the Kremlin's interest in the area. On the United Nations level this Soviet doctrine may result in an alliance of African nations with the Soviets and a force that may be more than embarrassing to the Western World. Khrushchev's visit to the UN may have had plenty to do with this.

Soviet political doctrine is in itself a strong and flexible weapon that requires an imaginative countering by the Free World. The implications are evident. There is little hope that the period of cold war may be over in the decade to come.

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# STRATEGIC RESERVES OF THE SAHARA



Colonel Th. J. Delaye, *French Army, Retired*

**I**N RECENT years the vast Sahara Desert has been glowingly described as a "New Arabian oil country," a "Sweden of the sands," and a "Mauritanian Lorraine."

These characterizations are in sharp contrast to the old concept of the Sahara as an area of worthless sand and rock useful only as a frontier for exploration by French adventurers; "a vast stretch of shifting sands where the Gallic cock can manage to scratch."

The time has come to evaluate the realities of the Sahara.

From 1800 to 1958 the world population has increased from 906 million to over 2,500 million. It is evident that to avoid starvation, we must double the majority of foodstuffs in the next 10 years. Although we have enough coal for thousands of years, we have

only enough oil for five or six decades.

We must find the means of supporting the continuous increase in world population. This requires energy. A veritable race for the discovery of new sources of energy has begun. The United States and the Soviet Union have started extensive exploration—the former in Alaska and the latter in Turkistan and Kolyma. France has turned to the Sahara Desert where newly discovered mineral deposits lay ready for exploitation.

After a millennium of unknown solitude, the Sahara is about to make a spectacular entry into the headlines.

*This is a translation by Mrs. Wendy Woollett of the article which originally appeared in the October 1960 issue of L'ARMÉE LA NATION (Belgium).*

Here has been found iron ore, coal, copper, and strategic material; oil and natural gas are spouting from her sterile sand; tracks are being laid; roads are being surfaced; and heavy trucks are running night and day, breaking the silence of the mountains with their noisy engines. The vapor trails of aircraft trace across its skies. Engineers, economists, political figures, and diplomats include it in the great problems of the moment. Neighboring countries which previously ignored the desert now lay vehement claim to territories which in the past were foreign to them. The French themselves, who have been accused of being satisfied with living in their abundant metropolitan atmosphere, are enthusiastic at the thought of the Sahara allowing them to exert great influence at the international level.

### The Realities of the Sahara

An objective evaluation of the Sahara requires putting aside the mirages and the preparation of an inventory, not merely of its known riches, but also of what can be expected in the future.

West of the surfaced road from Nemours to Abadla—first section of Trans-Sahara—is the coal-bearing basin of Kenadsa, which has an annual production of 300,000 tons and, farther to the south, that of Ksiksou, with coal reserves estimated at more than 55 million tons.

At Guettara, deposits of high-quality manganese have been found. These deposits are estimated at 1.5 million tons. In Western Sahara at Gara Djebilet—near the Spanish Sahara and 120 kilometers from Tindouf—a three billion-ton reserve of iron ore has been located. This is a surface deposit, exceeding any other deposit



Camel trails of the desert are being rapidly replaced by French-built roads provided with refueling stations, overnight accommodations, and telegraphic communications



Heavy construction plays a major part in the development of the region



## THE SAHARA

in the world in quantity. It alone would support the needs of Europe for a century.

An important concentration of hematite (iron) ore estimated at 180,000 million tons is located farther to the south at Fort Gouraud. A deposit at Akjoujt, 400 kilometers to the east of Port-Étienne, is estimated as capable of producing 1.5 million tons of ore annually. Also at Akjoujt is a 600,000-ton deposit of copper. This ore is exploitable by strip mining and will increase French production tenfold. In the past France has been en-

### Sahara the Province of Oil

A sample of Silurian schist, taken from an outcrop in an oasis near Ouargla in 1951 produced the first indication of oil wealth in the Sahara. Systematic explorations, using the most modern methods of geology, were conducted through an area of more than 600,000 square kilometers.

Natural gas was discovered at a depth of 2,000 meters near In Salah in 1954. A similar deposit was found at Hassi R'Mel in 1956. The vast reserve at Hassi R'Mel, estimated at more than 1,000 billion cubic meters,



tirely dependent on foreign imports of copper.

Prospecting in the Massif of the Hoggar and of Air has revealed deposits of tin, tungsten, and gold. Here also have been found rare and radioactive minerals like tantalum, and niobium, among others.

is the most important of the deposits known at present. It is also the most interesting, as it contains a gas rich in byproducts, capable of being condensed into gasoline. Because of its position, 400 kilometers from Algiers, it is easily accessible to the whole of Algeria.

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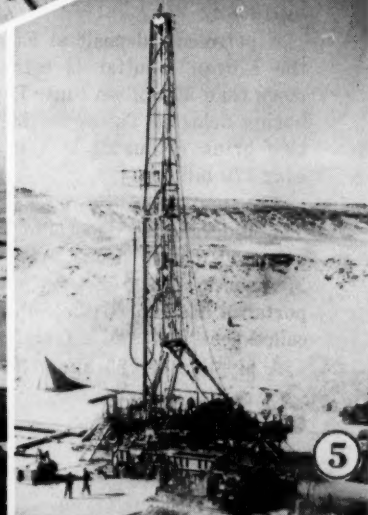
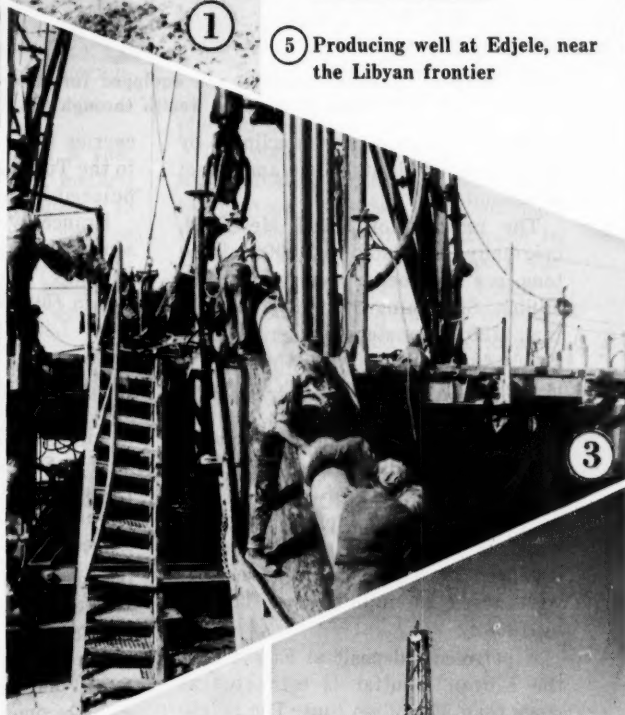
① Ouargla oasis. The first indications of Sahara oil were discovered in this area in 1951.

② Operations at Hassi Messaoud are tapping reserves estimated at more than 600 million tons

③ The Tiguentourine-Zarzaitine area, near Edjele

④ Aerial view of the development at Hassi Messaoud

⑤ Producing well at Edjele, near the Libyan frontier





**Heavy vehicles, specially designed and equipped for desert operations, expedite the flow of material wealth through the desert**

This discovery was soon eclipsed by the finding of oil at Edjele and Hassi Messaoud.

The reserves of Hassi Messaoud, originally calculated at 100 million tons, are now believed to exceed 600 million. Stretching over an area more than 120 kilometers in length and nearly 40 kilometers wide, this deposit is the largest in the world. The products of the Hassi Messaoud field are transported by a recently completed pipeline for a distance of 662 kilometers to the Port of Bougie. This field produced 1.6 million tons in 1959, which is equal to the annual tonnage produced in metropolitan France. It will exceed 20 million tons annually by 1963.

A petroleum deposit at Edjele near the Libyan frontier is estimated at more than 60 million tons. The neighboring fields of Tiguentourine-Zarzaitine bring estimates in this area to over 170 million tons.

The quality of the oil is excellent. The underground deposit of Edjele is only 450 meters deep; that of Hassi Messaoud is 3,300 meters, but its importance has caused the Sahara to be called the "Texas of Africa."

A pipeline of 785 kilometers which

carries the oil of the Eastern Sahara to the Tunisian port of Skhirra will be finished before the end of 1960.

France, with her oil from Parentis south of Bordeaux (1.5 million tons annually) and from the Republic of Gabon (500,000 tons), her natural gas from Lacq (the equivalent of four millions tons), and the 25 million tons which the Sahara is capable of producing, could market 31 million tons of oil annually. These figures presuppose adequate capital investment. France consumes only 25 million tons annually, thus production would far exceed her internal needs.

### **The Sahara and Solar Energy**

The Sahara possesses the perfect physical requirements for the production of solar energy.

At the present state of development economic production of solar power is practical only in an area near the equator where the sun's rays strike the earth's surface at minimum obliquity. An area of minimum cloud cover is also desirable.

The practicability of solar energy has been demonstrated at Mont-Louis in the Pyrenees where a solar furnace is being used for industrial purposes. Research is also being conducted near

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Algiers leading to the synthesis of nitric oxide and the fusion of ultrarefractory substances.

The Industrial African Bureau, a public organization created in 1952 to develop the Sahara, expects a speedy and economical solution to the problems of solar energy production.

Nuclear energy also holds promise for the North African desert area. The French Commissariat of Atomic Energy is at the moment in the process of constructing its first thermonuclear center in Algeria.

#### The Trump Card of Euro-Africa

The Sahara appears to be a vast reservoir of energy and raw materials, but there are many problems to be solved. Great distances, adverse climate, labor shortages and skill limitations, and the absence of essential, basic industries plague the development of the available resources.

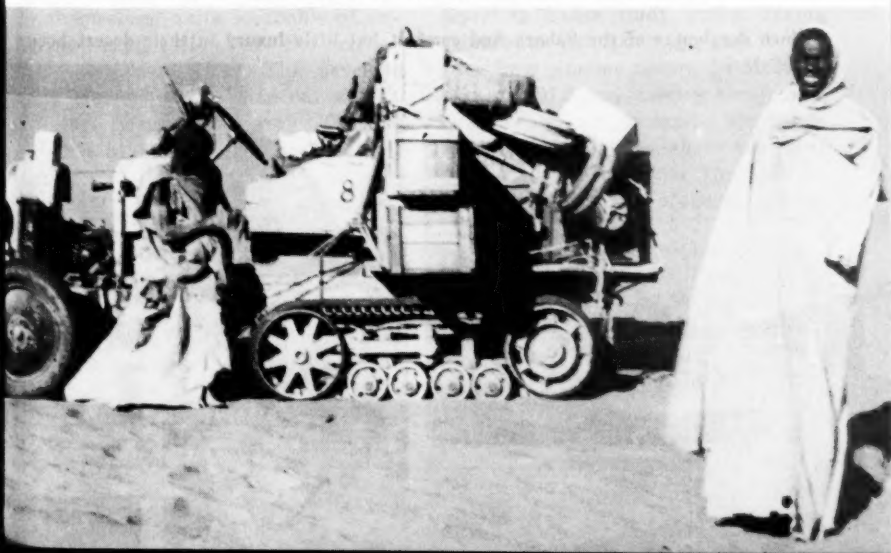
These problems must not be underestimated, nor should they be exaggerated; the problems which must be solved in the Sahara are not radically different from those which arise in Canada and Siberia under completely opposite climatic conditions.

France is not the only nation which has an interest in the development of the Sahara. Algeria will be the first to benefit. The pressure of population in Algeria since the end of World War II is one of the most severe to occur anywhere in the world. In 1830 Algeria had about 1.5 million inhabitants. Today, she has more than 10 million. In 10 years she may have 15 million mouths to feed. Since the 10 million existing Algerians cannot do more than subsist on a parched earth, the misery in which they risked being plunged is apparent.

This condition need never arise, for the productive potential of the Sahara can provide a solution to the problem. Power sources and raw materials in abundant quantity can support the development of an industry which is badly needed in Algeria. By meeting competitive prices on the world market, such an industry can feed a large part of Algeria's population.

Under the impetus of M. Houphouët-Boigny, great political leader of Black Africa and the Franco-African Community, the *Organisation Commune des Régions Sahariennes* (Joint Or-

Even the camel has found competition from the motor vehicle





**A street in the village at Hassi Messaoud shows the pre-fabricated individual dwelling units occupied by oil workers**

ganization of the Sahara Regions) was created in 1957 and entrusted with the "development, economic expansion and social promotion of the Sahara zones of the French Republic." This organization has worked to create a manufacturing complex in Eastern Algeria.

Industries now planned for the area consist of chemical plants, ironworks capable of an annual production of 1.5 million tons, refineries treating five million tons of oil, and a cement factory producing from 150,000 to 200,000 tons a year.

This complex will be the counterpart of the industrial zone of Colomb Béchar now being built near the coal mines of Southern Oran, the lead and

zinc deposits of Taouz, the copper and manganese of Jebel Guettara, and within 500 kilometers from the natural gas resources of Hassi R'Mel.

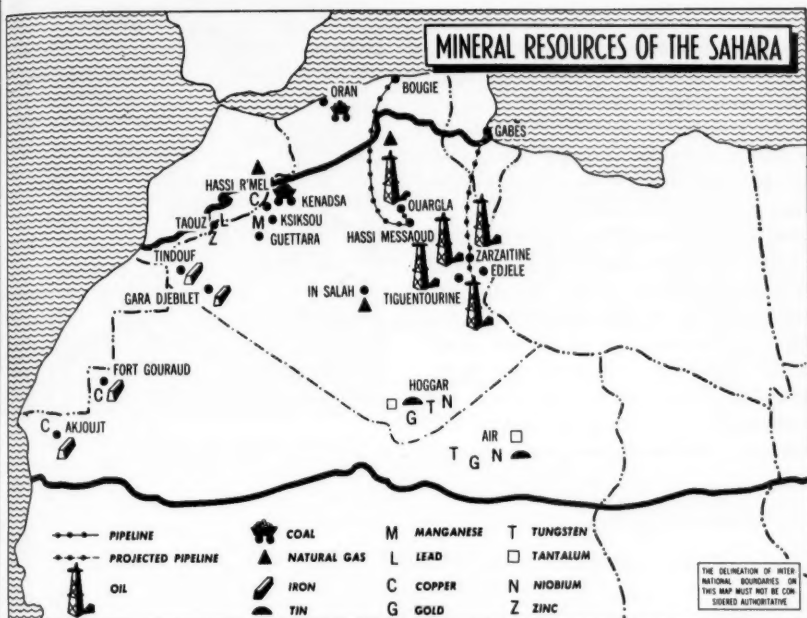
These establishments foreshadow the industrialization of Africa and the Sahara. They meet the social and political demands of the area, and they also comply with strategic requirements of the West. The last war demonstrated that Europe can only be defended if heavy industries and conversion industries are out of enemy reach.

The nations of the European Economic Community cannot refuse the opportunity provided by the Sahara to obtain the raw materials which they so badly need. The other member

**French developers of the Sahara find comfort but little luxury in their desert homes**



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countries, more even than France, need the iron ore from the Sahara; Europe, as well as Africa, can meet a large part of its power requirements with oil and natural gas from the Sahara.

Africa, and in particular the countries which border on the Sahara are, by themselves, quite incapable of ensuring exploitation of the riches which the desert holds. This development can only be carried out within an Euro-Africa framework. The interested countries have grasped this. Foreign capital is beginning to pour into the newly formed corporations. Belgian, German, Luxemburgian, Italian, and French metallurgists are participating in the exploitation of the iron ore of Tindouf, Fort Gouraud, and Akjoujt. The corporation which is going to work the deposit at Fort Gouraud is composed of only 51 percent French capital, the other shares

are held by English, Italian, and German groups.

Algerian industries require only about 300 million cubic meters of natural gas. This volume is inadequate to support profitable operations. The possibility of exporting some of the natural gas, after transforming it into liquid is under study and a daring scheme to transport the gas to Europe by a pipeline across the Mediterranean and Spain is being considered.

French efforts to exploit the petroleum deposits of the Sahara are being supported by Dutch and American interests. France has proposed the ex-

*Th. J. Delaye, author of this article, is a retired colonel of the French Army and a recognized authority on the Sahara. He writes from many years of service in the desert regions of North Africa.*

plotation of the Sahara's riches by her Western European partners, and by Tunisia, Morocco, and other African countries.

An industrial Sahara is being substituted for the Sahara of sterile sands and wandering nomads. The new Sahara is capable of raising the level of living conditions of her population and improving the economy of African members of the French Community. Thus in Algeria is developing the potential energy which will gradually allow her to rise to the European level, and which will form the foundation of European power and economic independence.



**Trained geologists conduct the search for new wealth in the desert**

*All photos courtesy of the  
French Embassy Press and Information Division*

**Modern transport has revolutionized prospecting for new resources**





# FRAME OF REFERENCE

## A Perspective on the Civil War

Captain Clinton E. Granger, Jr.,  
*United States Army*

**A** CENTURY of technological progress has dimmed our view of the conditions that actually governed warfare in 1860. Three major wars involving the United States have cast their shadows in the 20th century, adding to the difficulty of judging events of the American Civil War in relation to contemporary circumstances.

The War of the Rebellion lies midway in time between the chessboard battles of Frederick the Great and the global struggle of 1939-45. Closer in years and spirit, and perhaps influencing the thinking of both Confederate and Union leaders more than all

events and individuals of previous military history, was the successful genius of Napoleon. Much of the basic military doctrine, organization, and concepts of major unit employment accepted by all Americans of the mid-19th century were based on the thinking of the Emperor of France.

From the Civil War it is but a small step in history to the technical developments and battles of attrition of World War I. The years give no indication of the magnitude of change evident in every phase and aspect of the art of war. Yet the American Civil War frequently is termed the "first of modern wars," and the root

*A basic understanding of Civil War command, tactical concepts, and weapons will assist in an over-all understanding of its battles*

of the changes so clear in 1914 and 1940 often was apparent by 1865.

The centennial of the Civil War has created a great revival of interest in the war for the American public. A variety of new books have been published, as well as many reprints of the writings of those who fought and observed during the years when the Union was forged in fire. Still, to comprehend fully the reasons behind actions—or lack of actions—and to enjoy the tales of the blue and the gray, the average reader needs a small store of basic information concerning the conditions that prevailed in 1860. Comparisons of the basic philosophy of command, information about the weapons, unit structures, and tactical concepts help the reader form a realistic frame of reference for his pictures of the Civil War.

### Concepts of Command

Wars are fought by people, and armies are commanded by human beings. The human element always has been decisive in warfare, and human frailties may affect the possible "pushbutton" warfare of the future as clearly as they did the battles of Alexander or Caesar. With this in mind, perhaps it is best to look first at some of the military concepts of 1860.

Concepts of command responsibility have remained essentially the same

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for many centuries within the framework of the societies that produced the armies in question. However, the trends of thought and complete acceptance of inherent responsibilities were not *codified* until more recent years. Today, we place the responsibility for the results of command on the commander. He alone is responsible for all the command does—or fails to do. He cannot delegate this responsibility, nor can he pass the blame for failure of his command to a higher headquarters.

At the beginning of the Civil War these ideas were generally accepted, but the code governing the conduct of commanders was subject to some odd interpretations. Not always did the commander feel that he alone held the responsibility for success or failure. Success, even when doubtful, usually was claimed, but failure frequently was a matter of "passing the buck." Beauregard, McClellan—and many other commanders spent their postwar lives in arguments of self-justification. On the other hand, Grant and Lee never hesitated to accept their tasks and responsibilities.

With this in mind, the moment of decision for many of the subordinate commanders of both sides takes on new meaning. Certainly, "Stonewall" Jackson would interpret his orders literally, and spend his own life and the lives of his command without pause or doubt to achieve an objective. Others with lesser zeal and dedication often stopped to read their personal desires between the lines of vague orders.

Glory, political ambition, pride, fear—all were part of the fabric of command decisions in 1860. The liberal and varied interpretations of command responsibility permitted such

things. The concept of a staff as an advisory body was not sufficiently advanced to temper the definite and direct influence of the commander's personality. No staff suggested alternate courses of action to a commander when his plans were believed faulty, nor could credit for success go to a "brain trust."

### **Lack of Experience**

Further complicating the scene was the ignorance of commanders at all levels, on both sides. The Regulars had never commanded large bodies of troops; the problems of campaigns of the scale conducted were not within the body of experience of the American Army.

The Volunteers had little to draw on for instruction, other than Napoleon's classic descriptions of battles, maxims of war (subject to interpretation in a hundred different ways), detailed instructions governing the evolutions of troops in massed formations on a parade-ground battlefield, and Vauban writings on the fine points of siegecraft. All this was of remarkably little help in organizing, training, and fighting the armies of the Union and the Confederacy. The real lessons were learned only in the hard school of experience.

In the midst of this confusion and lack of knowledge and understanding, the failures of First Bull Run are masterpieces of inspired ingenuity. The fact that the battle was fought with some regard to the classic form of warfare is a tribute to the leaders of both sides.

### **Mobility**

Four bloody years rewrote the texts and brought startling new ideas and inventions into military considerations. The commander of today ac-

cepts mobility as a critical point of consideration, and uses many means to achieve this mobility. However, the use of railroads to achieve strategic mobility—and even tactical mobility on occasion—was first seen in the War of the Rebellion. The arrival of Jackson at the crucial moment, traveling by "the cars" to Manassas Junction, made a Confederate victory possible at Bull Run. Again, note that this was a situation undreamed of by the Marshals of Napoleon or the veterans of the American War of 1812.

In retrospect we see men, human beings, most of whom were not trained in the military profession, learning the art and techniques of war in an age of change. In a sense, the Civil War commander faced a greater technological revolution than commanders today. Certainly the accelerated pace of science must have been most impressive with the introduction of the massed use of rifled small arms, repeating carbines, improved artillery, ironclad ships, land mines, new cartridges, and the military telegraph.

Acceptance of the new and unexpected always is difficult. This may help to explain some of the happenings, especially in the first years of the Civil War. However, the state of mind alone cannot give the reader a picture of the circumstances in 1860. We must turn to the machinery of war and its uses to round out our frame of reference.

### **Organization**

The difference between an armed mob and a military unit lies principally in two factors: organization and discipline. The ideas of discipline in present-day armies are not unlike those of the Civil War. Discipline then and now represents nothing more than the acceptance of authority, and obe-

## A PERSPECTIVE ON THE CIVIL WAR

dience to the instructions of accepted superior officers.

Organization, on the other hand, presents radical departures in the 100 years between 1860 and the present, and is confused further by the common terms of the two periods.

Military units of the Civil War were classed as companies, battalions, and regiments, but the meaning of the terms were far different from the idea that comes into the mind of today's military man. There is a marked parallel in organizational concepts, companies and batteries being subordinate to battalions (where we still have battalions) and to regiments. In some respects the present battle group organization of the United States Army more closely resembles the Civil War organization of a regiment than the familiar World Wars I and II organizations. Companies were then, and are now, directly under the control of the regimental or battle group commander.

Again, battalions generally were separate organizations in 1860. Today, we have battalions only as separate units: armored rifle battalions, tank battalions, and similarly specialized commands.

With these apparent parallels the likeness ceases, for the composition and function of the units of like name, and with commanders of like rank, are radically changed.

Essentially, the Confederate and Union organization of forces was about the same. Their similarities grew from a common military heritage, the same general background in the key leaders of both the North and the South, and the use of the same texts as a basis for the initial efforts.

Federal organization varied slightly during the war, but followed a suffi-

ciently standard pattern to permit generalization. An infantry company, the smallest true building block, was composed of 64 to 82 privates, one wagoner, two musicians, eight corporals, four sergeants, one first sergeant, one second lieutenant, a first lieutenant, and the company commander, then, as now, a captain. The maximum strength totaled 101, but a company frequently was much smaller in reality.

### Attrition Without Replacements

The regiment was the basic tactical unit for the infantry. It was composed of 10 companies, a small regimental staff, and a band, and was commanded by a colonel. The strength of this regiment—full strength, possibly at organization—was about 1,000 officers and men. However, the continuous attrition of battle and disease gradually drained the strength of each regiment, and little or no provision was made for replacements. Some regiments attempted to renew their strength by recruiting replacements, at times even placing details on the desirable duty of seeking Volunteers in the area where the unit was raised originally. This was not particularly effective, and most new Volunteers—and later draftees—were formed into new regiments without gaining the benefit of integrating the green men with the hardened and experienced personnel from the older regiments.

As a result, before the end of the war certain regiments ceased to exist. Some were merged with the survivors of other regiments, or fought at such greatly reduced strength that the term "regiment" is very misleading. By 1863 a contemporary writer might record the deeds of a regiment—blue or gray—and mean anything from 100 to 1,000 men.

To confuse the issues further, Confederate strengths are inaccurate in many instances due to a general laxity in administration, and to the "drifting away and drifting back" of soldiers before and after a battle. With due respect to the Southern soldier, his reason for absence frequently was to care for his family and to work his land, and his return was to fight for that family against the "Northern invader."

### Strength Set by Law

In the other main branches of the Federal Army, again paralleled by the forces of the Confederacy, organization was fixed by law, but authorized strengths were seldom attained in actual practice. Artillery batteries, commanded by a captain and roughly corresponding to an infantry company, varied in maximum authorized strength between 100 and 150 officers and men. A troop of cavalry, again a company-sized unit, consisted of about 100 men, with the cavalry regiment made up of 12 such troops.

Exact strengths authorized for each unit varied at different periods during the war, both by direction of the War Departments and as a result of the various Acts of the Congresses.

There was, of course, a wide variety of special units, ranging from signal to irregular organizations of indifferent composition and resources. Each must be viewed separately, and no true generalizations on organization can be made. However, the present-day reader is reasonably safe in applying his knowledge of artillery, cavalry, and infantry as a guide—recognizing that strengths varied through attrition without replacements.

Weapons, the tools of the trade—or in current terms, the "hardware"—

reflect the technological differences more than any other aspect of comparisons between the Civil War and the present. Organization, leadership, and command are inherently matters of human ability and weakness; tactics are the applied thoughts of the leaders with regard to the weapons of the day, but the machines of war have become vastly different in the course of a century.

Many spectacular weapons of war were introduced or proposed; however, most did not see any particular degree of field service, nor did the truly unusual weapons actually influence the course of any major battles. In the special cases where they were employed, the incident should be considered aside from the general stream of events.

The principal items of "hardware" requiring consideration include artillery and the muskets, rifles, and carbines used by the infantry and cavalry. These were the basic tools, and their capabilities and limitations determined the type and effectiveness of units and tactics used in the Civil War.

In considering the artillery, it should first be noted that the employment of Civil War artillery pieces closely parallels the use of two current infantry weapons. At close ranges against massed formations, the cannon performed the same function as the machinegun does today: maximum volume of aimed and concentrated firepower in minimum time. This was most effective against the massed infantry formations of the period. With grapeshot (the projectile consisted of a cluster of iron balls attached to a central core resembling a bunch of grapes) and cannister (the main projectile was a container filled with loose

## A PERSPECTIVE ON THE CIVIL WAR

projectiles similar to musket balls), artillery had the effect of a giant shotgun.

### Direct and Indirect Fire

The second major role of Civil War artillery was direct fire with shot (solid iron balls, the weight determining the designation of the artillery piece) and shell (hollow iron projectiles carrying an explosive charge). Present-day artillery seldom is used in a direct fire role, but it does continue to possess that capability.

A current item of equipment that meets the requirement for direct fire, in the same manner as Civil War shot and shell, is the recoilless rifle. These are standard infantry weapons and are used, just as were the artillery pieces of 1860, in firing directly at the target. Such targets might include, then as now, enemy field fortifications, other weapons, and, of course, dense formations of troops. In the latter role, as an antipersonnel weapon, the Civil War cannoner selected his ammunition primarily with reference to the range—grape and cannister were more deadly against men, but shot and shell had many times the range, just as the range of a rifle far exceeds that of a shotgun.

The artillery of a century ago also was used in the same manner as modern field pieces, in indirect fire. However, the use of artillery in indirect fire was quite limited in 1860, being usually reserved for use by siege artillery and the mortars. The reasons for the current use of indirect fire—and nonuse in 1860-65—are easy to see: the technical equipment had not yet been developed to make this possible.

Ammunition, including propellant powder, was not sufficiently standardized, projectiles varied slightly, rapid

communication from a forward observer to the firing position was not usually possible, and the maps were totally inadequate for fire without an observer. These limitations were not particularly applicable to siege artillery where the target was fixed. The gunners could experiment to find the right combination of charge and elevation to put shells into the target area, and then depend on the volume of fire of long duration to achieve the desired result.

With these Civil War uses of artillery in mind, it is far easier to understand the formations of the time. The hub-to-hub dispositions at Gettysburg and Shiloh carry much more meaning if compared to machineguns being used against "human sea" attacks.

The capabilities of the individual cannon of the War of the Rebellion varied widely. Pieces were of both American and foreign manufacture, beginning with a confusing variety of types and sizes. As the war progressed, however, the best types emerged in quantity.

Rifled field pieces came into general use, replacing the smoothbore cannon and providing greater range and accuracy—but this change was very gradual. The standard pieces were still the 6-pounder and 12-pounder smoothbore, muzzle-loading bronze cannon called *Napoleons* after Napoleon III.

### Ranges Varied

The effective range of these *Napoleons* varied from about 300 to 1,600 yards, but a general range for good effective fire might be fixed at about 1,000 yards. Better results could be obtained at 600 or 700 yards—less than half a mile! No wonder men

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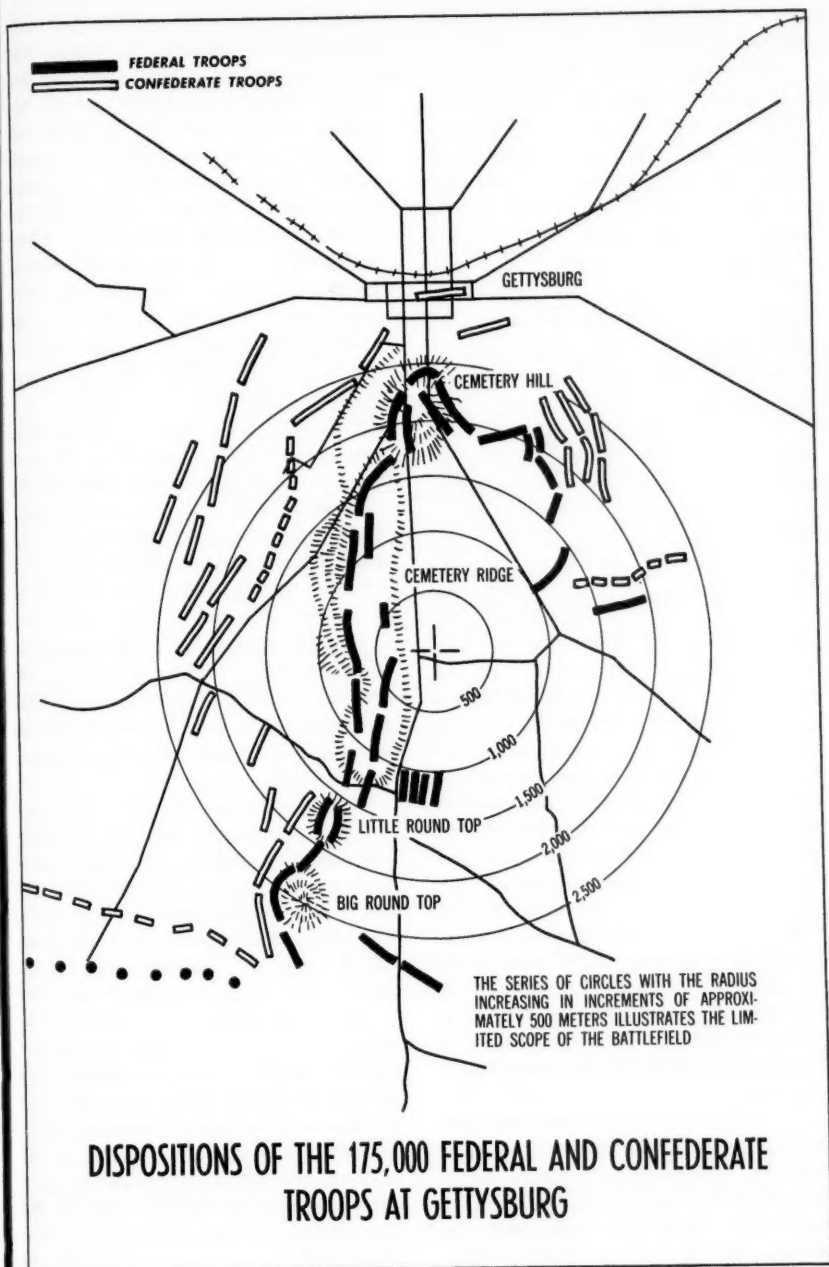
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Review



## A PERSPECTIVE ON THE CIVIL WAR

moved about with impunity under enemy observation.

The rifled 10 and 20-pounder *Parrott* guns doubled these ranges, and while no more effective at pointblank ranges, they were most valuable in engaging targets (such as shorter-ranged smoothbore artillery of the enemy) at long range.

Other types of artillery saw use, but the pieces differed little from those described. It was with these general capabilities and limitations in mind that commanders of blue and gray made their decisions.

In infantry weapons, the start of the war saw large numbers of smoothbore muskets in use on both sides. These weapons had a practical maximum range between 100 and 150 yards. When used in mass—the regiment in line, firing volleys—they were reasonably effective to twice that range, and quite worthless beyond.

The general introduction of the rifle as a standard infantry weapon greatly increased the ability of the individual soldier to deliver aimed fire. Rifles had been used in American warfare as early as the War of the Revolution, but had not been adopted as standard infantry weapons because of their slower rate of fire (about one-third that of muskets) for infantry of the line. However, continued development had made possible an accurate muzzle-loading rifle that had a rate of fire equal to that of a musket. With the advantage of rapid fire lost, the musket became completely obsolete.

One of the major developments that made the rifle possible was a new type of ammunition using a paper cartridge and the *Minié* ball. Paper cartridges were not new, but the *Minié* represented a technological

breakthrough of sorts. The projectile was cylindroconoidal in shape, and consisted of a lead shell tapering forward. The improvement was in the hollow base of the ball. The force of the explosion of the propellant powder expanded the base of the projectile, thus forming a tight seal with the rifled barrel. The rifled bore, which imparted a spin to the *Minié*, ensured greater accuracy through stabilization, and increased range through more efficient use of the propellant gases resulting from the tight seal between projectile and bore.

The effective range of rifles using ammunition of the new type, such as the common .58 caliber Springfield, increased to 400 to 600 yards—four times the range of the musket. A trained marksman could use this type weapon to its maximum ranges of 1,000 to 1,200 yards.

The adoption of the rifle as an infantry weapon influenced trends in tactics, and the American Civil War saw the beginnings of looser formations for line units that are widely used today.

Carbines, the shorter shoulder weapons generally used by cavalry, were effective only to about 150 yards. Various breech-loading and repeating carbines were introduced before 1865, and the increased rate of fire made up, in part, for the decreased accuracy.

One factor that should be borne in mind when reading about Civil War battles was the relatively short range of most weapons, rifles excluded. This explains why many of the things that appear to be almost impossible to the modern soldier were accepted in a calm manner and without concern by the leaders of the Confederacy and the Union.

The American Civil War started with tactics based on the preceding century of warfare in Europe. However, both the North and the South rapidly developed new and still familiar patterns. For example, in the initial stages of the war, the use of field entrenchments was the "coward's way." By 1865 the shovel had become a familiar companion, if not a close friend of the soldier.

### Trends

Infantry units generally were employed in linear formations throughout the war, but the increased effectiveness of weapons caused somewhat greater dispersal. The term "clouds of skirmishers" frequently is found, particularly in the accounts of later battles. The "clouds" were infantry in extended formation, and were still backed by mass formations, but the trend was clear.

Units marched in column—the only practical way to move rapidly and with close control; a formation used today for much the same reasons. However, in attack or defense the unit formed in two ranks facing the enemy. The formation prescribed for a regiment in the attack was an advance on a two-company front. When 10 companies attacked, the formation was deep enough to maintain the momentum of the attack. As regimental strengths dropped, it gave a more realistic frontage for operations.

For defense, the regiment was more frequently employed with companies in line—shoulder to shoulder, in effect—to achieve maximum firepower to the front. The defense was generally considered the stronger form of warfare, especially with the general use of field fortifications that came later in the war. The number of frontal attacks that failed appear to

verify the belief. For example, General Lee was successful in using the tactical defense (while remaining on the offensive in a strategic sense). His first major deviation from that pattern—Gettysburg—was a stunning defeat for the South, and one of the turning points of the war.

To understand the use of the "line," in which firing frequently was ordered by volley, reflect on the infantry weapons of the period. With the limited accuracy of the weapons, especially the smoothbore muskets of the beginning of the war, on which the tactics were initially based, "saturation fire" was necessary in order to ensure coverage of the target. In other words, the idea was simply that if enough soldiers aimed in the same direction and pulled the trigger at the same time, *some* would hit the target. The more soldiers firing, the greater number of hits; hence the mass formations.

### Limitations

The weapons and their limitations, the main reasons for the tactics employed, were equally instrumental in limiting the actual size of Civil War battlefields. Perhaps the largest battleground for any of the major engagements was First Bull Run, when both sides were relative "beginners." Later, masses of troops squeezed into tiny areas which would horrify the nuclear-minded tactician of today.

Tactics and techniques are generally considered the means of using the tools—weapons in the hands of trained men. The changes in weapons led to changes in tactics early in the Civil War, with marked acceleration in the later stages. The trends were not new in the mid-19th century, but were only continuations of the application of logic to the possible uses and impacts

## A PERSPECTIVE ON THE CIVIL WAR

of new developments. These same trends continue today. The commander who is presently concerned about the possibilities of a nuclear war probably is only slightly more worried than were the bearded boys in blue who first used a "modern" rifle or a repeating carbine, or met units using them.

### Frame Completed

Command, organization, weapons, and tactics—these are the basis for putting yourself in the long-gone commanders' boots. Perhaps, trying to look on affairs as a contemporary, the odd facts and apparent errors will

take on new meaning. If they do, you will have a more valid frame of reference. This description has been brief, and there are many matters left untouched, but with the Civil War—indeed, with any study of history—one must start with a few essential facts.

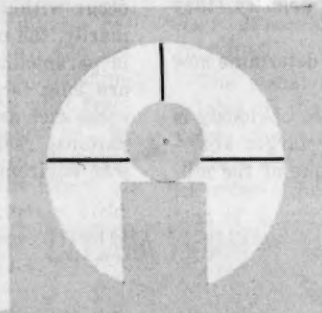
The principles of war have changed little (although interpretations vary); the thoughts behind military command are basically the same now as then. Armed with the essential data on weapons and tactics, you should find the stilted phrases of official records of 1865 or a historical novel of the same period of greater meaning and deeper significance.

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Fondly do we hope, fervently do we pray, that this mighty scourge of war may speedily pass away. Yet, if God wills that it continue until all the wealth piled by the bondman's two-hundred and fifty years of unrequited toil shall be sunk, and until every drop of blood drawn with the lash shall be paid by another drawn with the sword, as was said three thousand years ago, so still it must be said, that the judgments of the Lord are true and righteous altogether.

*From President Abraham Lincoln's  
Second Inaugural Address*

## ADJUSTING NUCLEAR SIGHTS



Lieutenant Colonel Francis J. Kelly, United States Army

**N**UCLEAR target analysis, in its race to achieve the contradictory objectives of sophistication and simplicity, has proceeded in such accelerated fashion as to cause some wonderment about where the state of the art really is and where it may be going. Ever since the first burst, the problem of translating the effects of a nuclear weapon into employment techniques or procedures for use by the combat soldier has been plagued with mathematical formulas and cumbersome reference data. Rightfully so, the demand for simplification of the entire target analysis technique has shifted to a search for methods which not only could be used by the combat sol-

dier but which he would not reject on the basis of complexity.

As often happens apparently synonymous terms appeared in the military jargon which tended to distort the term "target analysis." Certain of these should be distinguished from each other and then be placed in their proper perspective. For example, target evaluation—the examination of targets to determine their *military importance* and their *relative priority for attack*—should not be interchanged with target analysis which discusses what can happen to targets if they are struck by a particular weapon. The sequence is simply:

1. Target acquisition whereby tar-

*The ultimate objective in nuclear target analysis is not the exploration for more methods, but the evolution of a single, simple, accurate tool to aid the commander in accomplishing his mission*

## NUCLEAR SIGHTS

gets are detected, identified, and located.

2. The target evaluation of these located targets to determine whether, and in what order of priority, they should be struck.

3. Target analysis to determine how best to attack them.

The sequence described obviously is not peculiar to nuclear target analysis. It is a valid technique of the mil-

—one which is tactical and one which is technical. Together they form the circumstance of nuclear target analysis. A number of correlative events occur within the tactical sphere. Primarily, the mission of the commander is paramount. Affecting this mission are long term and short term influences such as strategic considerations; national restraint policies; the type war environment; the particular tac-



itary art that applies to nuclear and nonnuclear situations. This point is made to remind the nuclear fire advocate that there is a great deal more to target analysis than the technical aspects of the nuclear effects assessment.

### Tactical and Technical

Target analysis then is a compound of many things, all part of a whole with an ultimate payoff in the command decision. There are two precise divisions in the nuclear environment

tactical situation; nuclear weapon availability; enemy capabilities, dispositions, and tactics; and limiting requirements on fallout, obstacles, and induced contamination.

These influences recur as a commander begins to formulate the overall picture of the operation. It is only after this initial concept that the technical nuclear aspects of target analysis become an active part of the process. (See Figure 1.)

The objective of all nuclear target analyses is to relate as closely as pos-

sible the effects of nuclear weapons to specific targets. These targets are composed of elements that may respond differently under varying conditions of weapon application, subjective vulnerability, and diverse degrees of protection. Usually, the net result of such analyses is to determine in the form of an estimate what fraction of these target elements will be damaged, or how much of a target area will be covered by the effects of a nuclear weapon of a certain yield, having a particular delivery error at a selected height of burst and directed at a desired ground zero (DGZ). Similarly, the analyses may be used to determine the size weapon required to produce a desired fraction of target coverage or damage.

The methods by which the system of target analysis is advanced are geared basically to the relationship of coverage by nuclear weapon effects to target areas. Currently there are four methods of target analysis in various stages of acceptance and approval. These are:

The numerical method.

The visual method.

The weapon selection table method.

The nuclear slide rule method.

The numerical method involves the use of damage estimation graphs and nomographs in conjunction with effects data to provide a numerical description of the damage inflicted by a particular nuclear weapon on a particular target. This method has been

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approved by the Department of the Army and is included in Department of the Army Pamphlet 39-1, *Nuclear Weapons Employment*, dated May 1959, and Field Manual 101-31, *Nuclear Weapons Employment*, dated July 1959.

The visual method, which had its origins in the numerical method, involves the visual comparison of an "effects circle" with a "target area" in order either to estimate the fraction of target coverage, or to select a weapon of suitable size to produce a desired fraction of target coverage. This method, which uses a circular ruler template in conjunction with effects radii drawn from Vertical Dispersion Nomo Tables (VDNT's) has become relatively independent of the numerical method in terms of its application and results. This method also is approved by the Department of the Army and is included in the manuals cited in the preceding paragraph.

The weapon selection table method is a compilation of precomputed target analyses. The analyses are based on a series of target sizes of varying vulnerability attacked by particular yields at successive ranges. The results of the analyses are expressed in terms of the fractional coverage with which is associated a 90 percent probability of achievement (probable minimum coverage) and also expressed in terms of the average coverage which might be expected as the average results of a number of shots.

Because compound probabilities and highly accurate error data input were used in the computations which produced the probable minimum coverage fraction, the result shown is more accurate than the results achieved by any of the other methods described.

This method, because it is totally numerical, is most profitably used in conjunction with the visual technique described previously, thereby deriving the best advantages of accurate computing with those of visual association on a map representation. Thus, for example, the influence of terrain or target shape irregularities can be taken into account. The weapon selection table method currently is under review by United States Continental Army Command agencies.

The fourth method is a tabulation in slide rule form of a series of pre-computed analysis using data accrued from the numerical method. It provides for particular yields the fractional coverage with which is associated a 90 percent probability of achievement. It does not provide any other probability or associated coverage. In its present state it is a quick, but rough, method of selecting or rejecting a weapon system and, without further sophistication, has its best application in the rapid analysis field. Thereafter, further refinement of probabilities and coverages can be developed using the other methods described. It is presently in the research and development state.

The most significant feature of these four methods is that they are complementary, and not competitive. It is true that the very number of the methods and the different avenues of approach to solve essentially the same problem would suggest an amalgamation into a single practical method embodying the major advantages of each while avoiding or at least limiting the disadvantages. What then are the conditions which favor the use of one method or another in a given situation? The brief tabulation in Figure 2 is not designed to make authori-

ties in target analysis, or to substitute for the trained nuclear weapons employment officer. It is designed to clarify in the minds of commanders and staff officers the circumstances and objectives which favor one method as opposed to another.

Which individual method is selected for use by a commander or staff officer is a result of many subjective influences. It is necessary at this point to put aside the elements used formerly to distinguish methods, namely the elements of the time it takes to use one method or another, and the echelon of use.

It is no longer valid to use a time distinction, for all methods are reduced in complexity to the degree that the differences are no longer distinguishable. Nor is it valid to obey the precept, which also had a basis in timing, that one method is used at corps and division, while another is preferred at field army.

How then is competition among methods avoided? How do these methods fit into the target analysis framework? Perhaps the best starting point is the recognition that each method has some unique advantage (see Figure 2). Thereafter, the distinction really lies in the subjectivity or objectivity of the method and the fact that all methods verge on the important facet of selection of an appropriate nuclear weapon. (See Figure 3.)

Note that the distinguishing feature of the graphic methods is the subjective estimate of target coverage which is developed by the analyst, whereas, in the analog approach this element is precomputed and removed from the procedure. The ultimate objective of all the methods is to present to the commander a recommen-

# METHODS OF TARGET ANALYSIS

<i>Tools and Techniques Employed</i>	<i>Suitable Target Sizes</i>	<i>Suitable Target Elements</i>	<i>Desired Ground Zero</i>	<i>Target Shapes</i>	<i>Target Information</i>	<i>Analysis of Vulnerability of Friendly Dispositions</i>	<i>Remarks</i>
Series of graphs and nomographs	Area or point	Material or personnel	Target center or offset	Especially good for point targets, linear or columnar targets, and complex targets	Known with a reasonable degree of accuracy	Can be used where dispositions are circular or nearly so, or could be subdivided into such circles	Will handle a greater variety of situations than any other method. Has circular target and circular delivery error assumptions affecting apparent preciseness of computations.
Radii of effects compiled with vertical error accounted for PLUS weapon selector (circular ruler)	Area	Material or personnel	Target center or offset	Especially good for irregularly shaped targets and accounting for influence of terrain and accompanying effects	Does not have to be known with a reasonable degree of accuracy to derive comparative coverages	Can be used for analysis of noncircular targets	Special application in irregularly shaped targets. The visual comparison of effects with map representation is valuable. Can use data from Vertical Dispersion Nomogram Tables (VDNT) or weapon selection table source.
Series of precomputed effects and coverage relationships expressed in table form	Area	Material or personnel	Target center only	Especially good if target is circular or nearly so	Needs a reasonable degree of accuracy	Cannot be used	Most accurately computed. Has incorporated combined probabilities leading to more reliable estimates, assuming all other inputs are equal.
Series of precomputed effects and coverage relationships read through a windowgraph	Area	Material or personnel	Target center only	Used where target is circular or nearly so	Known with a reasonable degree of accuracy	Cannot be used	Rapid, easily used, convenient method of analysis. Additional development will increase the method value.
NUMERICAL							
VISUAL							
WEAPON SELECTION TABLE							
NUCLEAR SLIDE RULE							

Figure 2.

dition for employment of a nuclear weapon which will assist the commander in making his decision.

Combat conditions will not permit a qualitative appraisal of methods in so vital a component of firepower. It

visual facility of the circular ruler template to account for the refinements found in comparing the weapon effects with map representations. The numerical and nuclear slide rules thus are diverted into the specialized

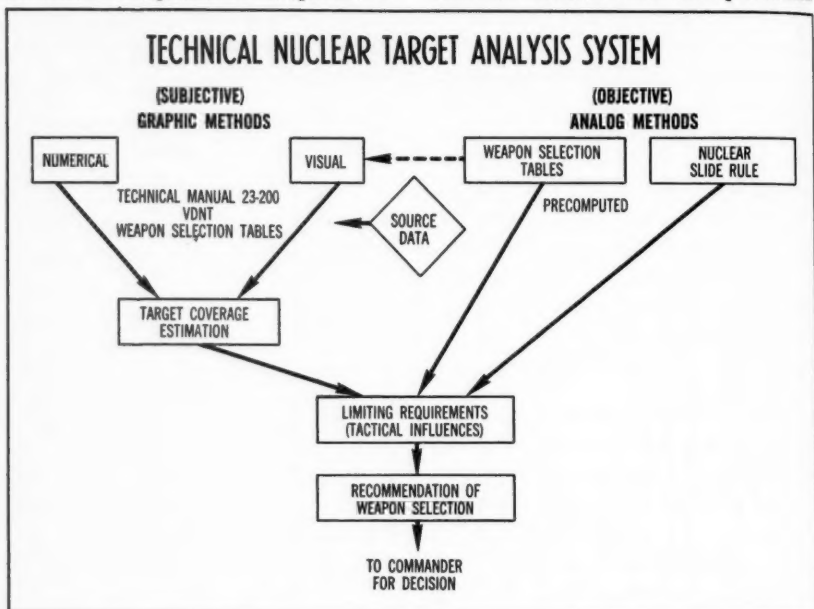


Figure 3.

is not foreseeable at the moment how one single method could positively provide all the benefits. An amalgam of the best features of each method would be the ideal. Thus it appears that the effort should center on improving the weapon selection tables to accommodate a condition where the DGZ and target center do not coincide. Then, marry this data with the

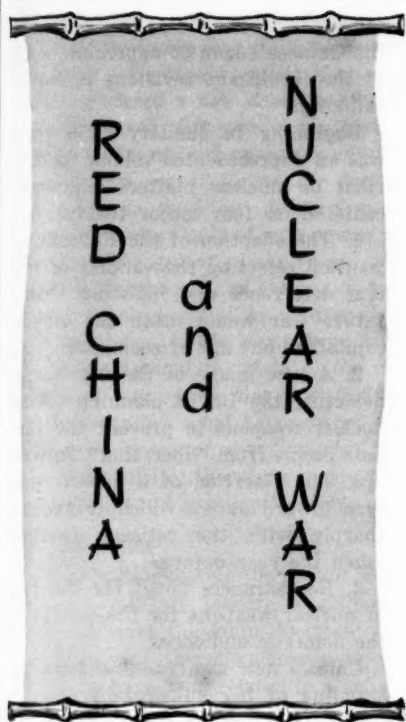
sphere of the nuclear weapons employment officer.

Some method alignment is in order before the confusion and prolonged mysticism cast doubt on all methods. The objective is not the exploration for more methods, but the evolution of a single, simple, accurate tool to help the commander to accomplish his mission—in short, to WIN!

## MOVING?

If you are moving, please notify the Book Department, U. S. Army Command and General Staff College, Fort Leavenworth, Kansas, of your change of address. Be sure to include your name, *old* address, and *new* address.

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Alice Langley Hsieh

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**T**HE Chinese Communists, on coming to power, were confronted with a set of strategic problems totally new to them. They were after 1949 in control of cities, and were rapidly developing a vested interest in industrial complexes, communication centers, and transportation facilities.

Although the Korean War awakened them to the importance of modernized, regular forces, the problem of decision making in the field of military affairs was complicated by the revolution in weapons and strategic thinking that had occurred outside China while the Communists were gaining and consolidating their power. The

nature of the Chinese response to this revolution; the divisive effect that a growing appreciation of the implications of nuclear warfare had on Chinese military circles and on relations between the Communist Party and the People's Liberation Army (PLA); and the significance of the evolving Chinese attitudes on the Sino-Soviet relationship are worthy of recognition.

Beginning in 1955 nuclear weapons, suddenly and almost dramatically, became the subject of public discussion in Communist China. Before that time such discussions, especially speculations on the impact of nuclear weapons on modern military operations and strategic concepts, had been virtually taboo. Such statements as had been allowed to appear were uniformly disparaging of the significance of nuclear weapons. This pattern of silence-plus-disparagement no doubt was a useful propaganda technique. But several factors support the conclusion that for many years the Chinese Communists simply did not develop a genuine understanding of the meaning of nuclear weapons to modern warfare.

### Conflict of Doctrine

Soviet military leaders, on whom the Chinese may be presumed to depend, were slow to evolve a doctrine on the subject. Moreover, the new strategic concepts of the Soviets were difficult to reconcile with the traditional Chinese Communist doctrine as

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embodied in Mao Tse-tung's military thinking, with its emphasis on protracted war, strategic withdrawal, and the subordination of purely military considerations to the political-military-economic objectives of the revolution.

The men who had been schooled in these principles and were experienced in their successful application were reluctant to accept and assert the new Soviet concepts—based on purely military considerations—that armed conflict was the crucial aspect of warfare, that the laws of war applied to both sides, and that, given the use of nuclear weapons, the first phase of a war could determine its outcome.

### Turning Point in External Affairs

The year 1954 was the watershed in China's approach to foreign affairs and issues of strategic concern. A review of the Indochina campaign suggests that the Chinese decision to end the war in Indochina short of complete control of the country may have been related to their over-all estimate of the existing balance of power. The 1954 operation in the Taiwan Strait and the manner in which both the Chinese and the Soviets calculated the risks inherent in that operation recognized the superiority, at the time, of the US nuclear stockpile and delivery capability.

It is reasonable to speculate that China's acquiescence to a policy of caution, particularly with respect to her Taiwan objective, must have been based on an understanding of the power factors involved—the intermediate state of Soviet weapons development, Soviet estimates of the US strategic posture, and the still unresolved debate in the Soviet Union over the implications of thermonuclear warfare for military science.

This indirect evidence points to September-October 1954 as the date when the Chinese began to appreciate some of the significant revisions in Soviet thinking.

Beginning in January 1955 there was an unprecedented volume of comment on nuclear matters. Emphasis centered on four major themes:

1. The adoption of the Khrushchev position rejecting the validity of mutual deterrence and insisting that a future war would mean the end of capitalism but not of socialism.

2. A new image of the war threat depicting the US as planning to use nuclear weapons to prevent the Chinese people from "liberating" Taiwan.

3. The assertion of a nuclear posture toward Japan which contrasted sharply with the reticent position taken the year before.

4. Reassurances about the dangers of nuclear weapons for the benefit of the domestic audience.

China's new awareness and understanding of her vulnerability to nuclear attack would help to explain why Peking decided to drop the operation in the Taiwan Strait and to use the Bandung Conference, held in April, to call for negotiations with the US. This military-political decision speaks at least some degree of realism in Chinese estimates of nuclear warfare.

### A Fundamental Reassessment

By July 1955 it was evident that the implications of the revised Soviet military thinking were no longer barred from discussion. A fundamental reassessment of China's security position in an era of thermonuclear weapons was in progress among Chinese military leaders. For example, General Liu Po-ch'eng, who had been appointed head of the Military Train-

ing Department of the General Staff in November 1954, observed:

*With the emergence of atomic weapons and jet weapons, military science has registered a new development. It is anticipated that war in the future will be a combined operation by the land forces, naval forces, air forces, parachutists, and air defense units carried out on the land, at sea, and in the air. The extent of the fronts, the size of the armies, and the use of material supplies will all be greater than heretofore. . . . We must have high vigilance against the plots of the imperialist aggressive bloc for starting a new war, we must be prepared for the suddenness of war launched by the imperialists; therefore we must be materially and spiritually alert. . . .*

#### Internal Debate

This willingness on the part of some Chinese military leaders to acknowledge at least the main doctrinal implications of thermonuclear war appears to have been related to a debate then current within Chinese military circles as to the defensive measures that could, or should, be adopted against thermonuclear attack. Although the picture is complex, two schools of strategic thought can be identified.

The position of the Ministry of National Defense, as voiced by P'eng Teh-huai in his speech of 16 July, conceived that the outcome of a war of the future would depend on manpower and resources mobilized after the outbreak of hostilities—the old concept of an extended war or long war of attrition.

The more professionally oriented officers of the General Staff expressed concern over the implications of surprise attack and were inclined toward

a strategic approach based on a well-trained and well-equipped standing army, a strong air force, and an adequate air defense system. In short, they advocated a concept of forces in being and a military posture that would tend to reduce China's vulnerability to a first blow. Yeh Chien-ying, Director of the Inspectorate of the Armed Forces, went so far as to say that "pending the full establishment of our industry, within certain limits it is necessary for us to resort to the expedient of placing orders with foreign countries."

This cleavage within the Chinese military was further reflected in attitudes on related issues. That school of military thought which sought to rely on the mobilization of manpower and resources subsequent to attack also subscribed to a reduction in defense expenditures through reduction of the standing army and dependence on trained reserves. They assigned priority to economic over defense construction, advocated greater party control over the PLA, and advocated the army's mobilization to assist in economic construction. There are indications that this group tended to have a high estimate of Soviet deterrent capabilities.

The "professional" element in the military which, in effect, favored a quasi-independent Chinese defense posture was silent on the proposal to reduce military expenditures and the standing army, and deemphasized the strategic role of reserves. This group argued for the "coordination" of economic and national defense construction; tended to minimize the role of the party in the PLA; questioned the use of the army in economic construction; and may have had some doubts about the reliability of the Soviet

deterrent or the nature of the Soviet commitment to China.

### Politics and Strategy

This debate touched on the most basic of decisions to be made in Peking: the definition of revolutionary objectives, the allocation of scarce resources, and the relationship between the party and the military.

The issues involved were to be spelled out more clearly in mid-1958, when Chu Teh attacked those with an exclusively military viewpoint.

The newspaper *Chieh-fang-chun Pao*, in the summer of 1958, admitted that some officers, who placed a one-sided stress on the suddenness and complexity of modern warfare, had openly opposed the party's leadership of the PLA on the grounds that it precluded the essential unity of command. The same newspaper branded as an "erroneous tendency" the one-sided stress on the role of nuclear weapons and modern military techniques.

Between mid-1955 and mid-1957 several major developments had affected the course of the debate and, consequently, the nature of China's military structure. The large-scale Soviet hydrogen bomb tests in late 1955 must have reinforced the position of that group which placed its confidence in the Soviet deterrent capabilities. In 1956 a high-level internal decision reaffirmed the policy that economic construction remained the critical issue, no doubt on the grounds that the measures advocated by the General Staff were unrealistic in view of China's low economic level.

On the other hand, between late 1956 and early 1957 there was new evidence of a growing appreciation of the importance of scientific research and development and its applicability

to the armed forces. However, this period also marked the reassertion of the party as leader of the PLA and the beginning of a process by which Ministry of National Defense personnel eventually took over most of the leading posts in the General Staff.

### Contradictions and Confusion

With the contradictions in these developments Chinese military thinking remained confused. In mid-1957 Marshal P'eng, in his Army Day statement, reiterated his earlier views. Chief of the General Staff Su Yü, on the other hand, placed greater emphasis than P'eng on quality, training, and the promotion of combat capabilities in the armed forces. Moreover, he did not underestimate the destructive power of nuclear weapons or the impact of a first blow, although he did not admit that such a blow could affect the outcome of a war. He took the position that nuclear weapons could not achieve the objectives of occupation and subjugation and that the infantry, therefore, remained the deciding factor in war.

In a sense, Su Yü was combining the concept of broken-back warfare with that of Mao's extended war. But in stressing the need for highly trained, well-equipped forces in being, a strong air force, and adequate air defense and civil defense systems, he was subtly underlining the gap in China's strategic posture and indirectly challenging the decision makers in Peking.

Whether one took the viewpoint of the Ministry of National Defense, with its implied reliance on Soviet deterrent capabilities, or that of the General Staff, with its presumed demands on the Soviet Union for fighter aircraft, petroleum supplies, radar, and other modern equipment, there

this perception of the PLA and the military which was a personal matter of the Staff.

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was no denying that Chinese military power was dependent on the Soviet Union.

The corollary to this dependence was the greater ability of Moscow to control the nature of China's military moves and the development of China's military structure. Because Soviet weapons development had not yet entered an advanced stage, it is probable that various issues of broad strategic significance between the Soviet Union and China had to be muted.

### Soviet Control

With the Soviet Union's technological military breakthrough in the second half of 1957 it became not only possible but necessary for the two partners to consider basic issues of strategic significance. The Soviet advance suggested to the Chinese new avenues of maneuverability, both political and military, within the shield of Soviet nuclear retaliatory power. At the same time, however, it further underlined for them the extent of their military dependence on Moscow.

The Chinese thus found themselves in the paradoxical position of being more dependent on the Soviet Union within a stronger bloc. The Soviet Union, because of her new level of weapons development, could now afford to discuss these questions. It was to her interest, also, to coordinate the over-all strategy of the Communist bloc.

A review of over-all bloc strategy in all probability took place during the Mao-Khrushchev discussions in Moscow in November 1957. At the very least, Mao must have asked Khrushchev to agree to Chinese exploitation of the political, cold war potentialities of Soviet technological developments. More than likely he also sought a clarification of China's strategic

role within the Socialist camp.

China's more bellicose posture after the meeting suggests that there had been no difficulty on the first score. However, it is less certain that Mao received the desired clarification of China's strategic role, at least in terms satisfactory to the Chinese. It is extremely unlikely that Khrushchev was prepared to place the Soviet deterrent power at the service of Chinese military ambitions. No doubt, however, some understanding was reached, if only because Khrushchev was anxious to minimize the possibilities of miscalculations on the part of Peking. The question of renewed Chinese action against the offshore islands may have been discussed within this context.

If China asked for a nuclear capability from the Soviet Union, the Soviets may have countered the request with the suggestion of an atom-free zone in Asia. Some compromise may have been reached on the question of China's future manufacture of nuclear weapons, with Moscow agreeing to assist China more liberally in the peaceful uses of nuclear energy.

Mao's failure to realize some of China's immediate aspirations may explain why, from December 1957 to late May 1958, the Chinese appeared to be in the process of adjusting their strategic thinking to the decisions reached in Moscow. This was the period of overt Chinese support for the concept of an Asian atom-free zone, culminating on 10 May in Foreign Minister Chen Yi's oddly contradictory interview with two German correspondents, in which he both endorsed the proposal and predicted that China would have nuclear weapons in the future. (Thereafter, Chinese support

for an Asian atom-free zone was dropped until the idea was revived by Khrushchev at the 21st Congress of the Communist Party of the Soviet Union.)

### China's Nuclear Potential

More important, it was on 23 May 1958 that Liu Ya-lou, Commander of the PLA Air Force, wrote in *Chieh-fang-chun Pao*:

*... China's working class and scientists will certainly be able to make the most up-to-date aircraft and atomic bombs in the not distant future. By that time, in addition to the political factor in which we always occupy an absolutely predominant position, we can use atomic weapons and rockets . . . in coping with the enemies who dare to invade our country and undermine world peace. By that time, another new turning point will probably be reached in the international situation.*

This identification of China's future production of nuclear weapons with "another new turning point" suggests that the Chinese, at that time, were not relying on the Soviet Union to grant them a nuclear capability but had perhaps decided that, if they were to have nuclear weapons, they would have to make their own. Liu's statement, which dealt with future capabilities, would suggest also that the Chinese had reconciled themselves to a transitional strategy—one which recognized China's relative military weakness until the day she herself could manufacture nuclear weapons and which, in the meantime, called for limited military objectives, and continued reliance on the Soviet Union's deterrent posture.

This recognition of a continued, although temporary, weakness in China's military power was easily ob-

scured, however, by the emphasis which Liu and others were to place on the study of Mao's military thinking and the man-over-weapons theme. During the next few months professionally oriented officers, who might have been expected to challenge a transitional approach in China's strategic thinking, came under severe criticism, in the course of which the basic issues that separated these persons from the party were publicly admitted.

### Testing US Responses

In the weeks from late May through July 1958, the discussion of strategy appeared to move from the level of theory to that of concrete planning for immediate military operations. Mao and Khrushchev, at their meeting in late July and early August, probably arrived at some further decisions. Thus the course of the Taiwan crisis in the summer and fall of 1958 provides several clues as to the nature of Chinese strategic thinking and operational decisions, as well as to existing understandings in the Sino-Soviet military relationship.

The crisis was designed to test US responses in the area in the light of the changes in security calculations that had occurred since mid-1957. China's intent was to take the offshore islands if this could be done without undue risk. In a larger sense, it was to be determined whether the new Soviet strategic posture could prevent the United States from considering the use of tactical nuclear weapons, to the advantage of China's conventional forces.

In view of the fact that Chinese military operations in 1958 never passed the point where they could have elicited a US nuclear response, it seems likely that the Chinese were not prepared to accept the risks in-

involved in taking the islands, and that Moscow was unwilling to let a situation develop which might have compelled the Soviets to invoke their deterrent shield—a decision over which Moscow clearly retained sole control.

In sum, the 1958 Taiwan Strait action, in so far as it remained at a low level of violence, gave every impression of being a subordinate phase in China's long-haul approach toward her political, economic, and military objectives. With publication in late October of Mao Tse-tung's *Imperialists and All Reactionaries are Paper Tigers*, and in particular with the revival of Mao's prognosis for the future—that the enemy should be strategically despised but tactically respected—Peking not only rationalized its failure in the Taiwan Strait in the eyes of the Chinese people, but also, and more important, dramatically reaffirmed this long-haul approach. There was a strong suggestion, furthermore, that the Chinese were modifying their earlier assumptions about Western weakness.

#### **Economic Development and Party Control**

During late 1958 and early 1959 there was indication that transitional strategic concepts dominated Chinese military thinking. In fact, as the commune movement picked up speed, the PLA was increasingly mobilized in the service of internal economic construction. The professional element in the military, which might have questioned the wisdom of so dissipating the strength of the PLA, was further curbed.

Party assertion of leadership over the army could be seen also in the "generals-to-the-ranks" program which was vigorously implemented. And the subordination of the General Staff to the Ministry of National De-

fense was strikingly affirmed with the dismissal, in mid-October, of Su Yü as Chief of the General Staff and his replacement by Huang K'o-cheng, a strong party man and a Vice Minister of National Defense.

These developments took place within a Sino-Soviet strategic relationship which still did not appear to have been fully defined. Continued friction, stemming perhaps from continuing Chinese pressures for a stronger Soviet commitment, could be detected in the support which the Chinese lent to Khrushchev's revived proposal for an atom-free zone in the Far East and Pacific in January 1959, and in the subtle undertones in Khrushchev's statement to Harriman in June 1959.

Khrushchev, it will be recalled, told Harriman that the Soviet Union had shipped numerous rockets to China and would lend military assistance should the Chinese decide to take Taiwan. His remarks, however, did not suggest that the Soviet Union was now prepared to share her nuclear capabilities with the Chinese, nor that the manipulation of the Soviet deterrent was controlled by any country but the Soviet Union. The statement seemed designed to create the impression that the US strategic posture in the Far East had been neutralized. It was probably intended to introduce a new element of uncertainty into US planning. Such intent would point to a policy conceived in terms of a long-range political payoff rather than with a view to imminent military aggression.

#### **Sino-Soviet Divergencies**

These earlier hints of friction were substantiated in the second half of 1959 when there was increasing evidence of a serious divergence of views between the Chinese and the Soviets

on the correct tactical approach to the West. China's reluctance to accede to a reduction in international tension and her undisguised preference for a more aggressive posture toward the West were characteristic of a stage of development marked by political and military weakness.

Militarily, the Chinese were still dependent on a Soviet nuclear deterrent, and it was as yet far from clear to what extent Moscow would use this deterrent to forward China's political objectives. By themselves, the Chinese were in no position to assert even a minimal military posture based on well-trained, well-equipped forces in being, as was demonstrated by the poor performance of the Chinese Air Force during the 1958 Taiwan Strait crisis.

By mid-1959 this discrepancy between China's political objectives and her military means must have awakened the leadership to the harmful effects of the divisions within the Chinese military. These divisions came under two major headings. On the one hand was the conflict between the professional military and the party. Communication, which had begun to deteriorate in 1954, had broken down almost completely in mid-1958 when professional thinking was curbed still more severely in the effort to ensure acceptance of a transitional strategy. Many of the professionals (among them perhaps Su Yü, who was subsequently dismissed) not only were dissatisfied with the poor showing of Chinese forces during the Taiwan Strait crisis, but also perhaps questioned the wisdom of initiating hostilities in the area altogether. Many of them opposed the dissipation of the PLA in economic construction work to the detriment of the training

programs they believed necessary. They had been further demoralized by the generals-to-the-ranks movement and by the role assigned the militia in the commune program.

### The Army versus the Party

On the other hand, there was a growing problem between the party and the PLA rank and file. The latter, who were primarily of peasant origin, were betraying a latent antagonism to the commune program, and were thus questioning one of Communist China's basic revolutionary objectives.

Any reconciliation of these divisive tendencies was beyond the power of the Minister of National Defense, P'eng Teh-huai, who over the years had strongly committed himself to the position which subordinated China's immediate strategic posture and military structure to the demands of China's industrialization. It is against this background that we must see the appointment of Marshal Lin Piao on 17 September 1959 to succeed P'eng as Minister of National Defense at the same time that Lo Jui-ch'ing replaced Huang K'o-cheng as Chief of the General Staff.

Lin's absence from the political scene from late 1950 to May 1958, when he became a member of the Standing Committee of the Politburo (the only military man, aside from Chu Teh, to hold such post), saved him from being publicly identified with either side in the debate on military affairs. Because of his strong party position and his established reputation as a battle strategist and logistics man, Lin was in a position to restore two-way communication between the party and the professionals, and thus to bring back into play the type of skills and knowledge that even the Communist Party cannot dispense

with for long. This was essential if the PLA was to be so revitalized as to eliminate any possibility of another poor showing such as the one in the Taiwan Strait.

At the same time, Lin's mentality was better suited than P'eng's guerrilla outlook to directing China's military course in a period when China might join the nuclear club, if only as a nominal member, and might be prepared to gamble for high stakes in the Far East. Lin's reputed acceptability to the Soviet Union may have been another of his assets.

### Reconciliation

While Lin's appointment may thus be understood in terms of the need to reconcile political objectives with military means and the aspirations of the party with the views of the professionals, the appointment of Lo Jui-ch'ing, former Minister of Public Security and head of the Public Security Forces, to the post of Chief of the General Staff would seem to reflect a desire to eliminate divergences between the attitude of the rank and file and the revolutionary aims of the leadership.

Lin's article of 29 September, on the occasion of the 10th anniversary of the People's Republic of China, demonstrated the scope of his task of synthesizing divisive elements. As he directed himself to both rank and file and officers he left no question that politics would continue to govern. He criticized as incorrect the attitude of officers and men toward the communes. The PLA, he said, was to par-

ticipate in mass movements, in economic construction, and in the generals-to-the-ranks program. He acknowledged the role of the militia. Man remained the important factor in modern warfare.

But at the same time Lin placed equal emphasis on the modernization of the PLA, on the importance of a standing army possessed of modern technical equipment, on training, and on the system of command, centralization, and discipline. He implied that the development of the national economy and the strengthening of national defense would proceed together. And he called for the liberation of Taiwan.

After praising the party and Mao Tse-tung for having correctly solved significant military problems, Lin cited Mao's *The Question of War and Strategy* to the effect that "the armed forces constitute an essential part of the political power of a state" and that "our principle is to have the party directing the guns." Lin did not actually quote the other pertinent passage from Mao's work, his contention that "political power grows out of the barrel of a gun," but its intimation was clear.

Although Lin did not challenge past party decisions and practices with respect to military affairs, his article conveys the impression that, hereafter, Peking's policy will tend toward closing the gap between political objectives and military means, and its insistence on party leadership over the army will be modified by the demand that it be party leadership over a *strong* army.

# MILITARY

## NOTES

### UNITED STATES

#### Biological Warning Device

The United States Army Chemical Corps has awarded a contract for the design and testing of an automatic device to detect and warn of biological contaminants in the air. Prototype equipment produced by the Chemical Corps has demonstrated the feasibility of such a system.

The biological warning system will employ sensitive devices linked to computers which will record data for immediate relay to operations centers.—News item.

#### 'SD-4' Drone Discontinued

The Army has canceled further research and development on the *SD-4* aerial surveillance drone system. Funds related to this project will be applied to other research and development. Components developed as a result of the *SD-4* program will be used in other surveillance projects.—News release.

#### Fort Wainwright

The Alaskan installation formerly known as Ladd Air Force Base (MR, Nov 1960, p 73) was redesignated Fort Jonathan M. Wainwright in January when control was assumed by the United States Army. The designation is in honor of General Wainwright who was awarded the Medal of Honor for his leadership of the US forces in Bataan during the Japanese invasion of the Philippines in World War II.—News item.

#### 'M-17' Gas Mask Production

The new *M-17* gas mask (MR, Sep 1959, p 78) will be produced in quantity under terms of a six million-dollar contract recently awarded by the Chemical Corps. Adopted as standard

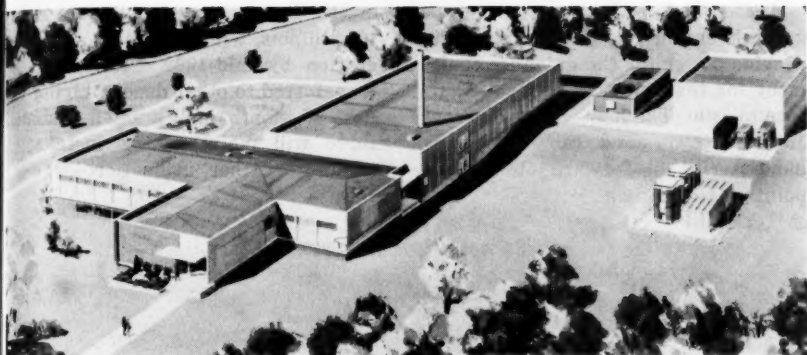


US Army

#### Canisterless gas mask

issue by the Army, Navy, and Marine Corps, the *M-17* employs no canister or hose. Instead, a newly developed filter is enclosed in the facepiece of the mask.—News item.

## Armed Forces Radiobiology Institute



Architect's concept of the Armed Forces Radiobiology Reactor facility

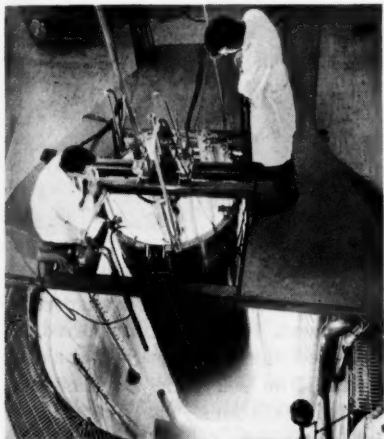
US Army

Facilities under construction at Bethesda, Maryland, will permit scientists of the three military services, other Federal agencies, and civilian organizations to conduct a broad research program on the biomedical ef-

When completed the institute will have the first pulse reactor designed solely for medical research purposes.—News item.

### 'LARC-5' In Final Tests

Tests of the Army's new all-aluminum amphibious cargo carrier, the LARC-5, are currently being conducted with a view to quantity pro-



US Army

Scientists work with a prototype of a medical research reactor

fects of radiation. The installation, designated the Armed Forces Radiobiology Research Institute, is located at the National Naval Medical Center.



US Army

### Five-ton LARC-5 amphibian

curement in the near future. The LARC-5, smallest of the new series of over-the-beach cargo vehicles, has a five-ton capacity, is 35 feet long, and is powered by a single 270-horsepower engine.—News item.

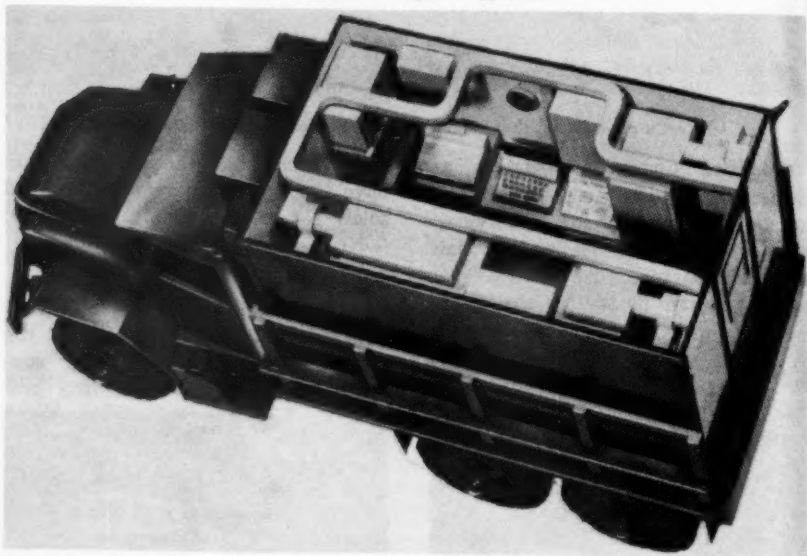
### Power For 'Lacrosse' Guidance

A 23-pound, two-cylinder, two-cycle gasoline engine has been developed to provide power for the guidance equipment for the *Lacrosse* surface-to-surface missile. The new engine develops 10 horsepower and can be readily hand-carried to forward observation points.—News item.

### Signal Depot Phasing Out

The Decatur Signal Depot, Decatur, Illinois, will be phased out of operation by mid-1962. Stocks will be transferred to other depots during the next 15 months and a small custodial force will maintain the installation pending further utilization.—News release.

### 'Basicpac' Computer Systems



*Basicpac* computer in mobile shelter

The United States Army's *Basicpac*, an integral part of the FIELD-DATA family of automatic data equipment, has reached the system testing stage. The initial *Basicpac* computer system was delivered to the US Army Signal Research and Development Laboratory, Fort Monmouth, New Jersey, in January for final acceptance testing.

The computer is a flexible, rugged, reliable data processing system which meets all military specifications for

shelter mounted, air-transportable equipment. It can be transported and operated from an *S-109* shelter mounted on a 2½-ton truck or from fixed installations. The *Basicpac* can be employed as an element of an integrated data processing system, as a part of an operations center at army, corps, or division level, or as a special purpose computer in connection with a radar set, a drone control system, or a weapons system.—News release.

## New Howitzer



**T196E1 howitzer**

The United States Army plans to procure a limited number of the new T196E1 155-mm self-propelled howitzers during the current fiscal year to replace the M44 now in use. The new howitzer is a full-tracked, highly mobile vehicle with an over-all weight of 47,000 pounds as compared to 64,000 pounds for the M44. A total of 19,000 pounds of aluminum are employed in the hull, turret, wheels, and other components of the vehicle.—News release.

### **Military Applications For Bionics**

Bionics, a relatively new scientific term, is defined as the art of applying biological systems to engineering systems. Of significant military interest, the new science visualizes the ultimate development of a "living" machine which can make intelligent decisions, learn from its own experiences, and adapt to its environment. One researcher has stated:

*... Even though computers have made major contributions to our present explosion in scientific knowledge, most of them are capable only of high speed arithmetic. However, since we have built math computers which are faster and more reliable than man, then it appears possible to produce biocomputers with superhuman capabilities.*

*The key lies in discovering more*

*about the living world and applying it to machines, and unraveling the successes in nature to improve our machine systems.*

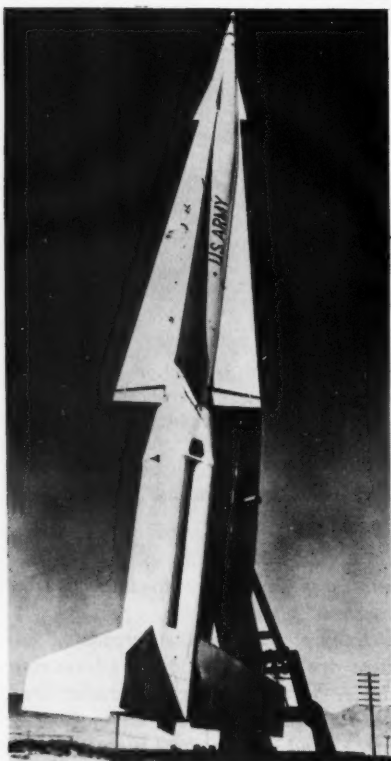
*Examples of such successes in nature are use of an infrared sensing device by rattlesnakes . . . radar used by bats and porpoises; navigation of birds; and use by some insects of the night sky and stellar patterns for navigation. Although we have some knowledge of each, much remains to be learned.—News item.*

### **Space Jeep**

A research contract for \$140,000 has been awarded to a commercial agency by the United States Air Force for study of a space jeep. The vehicle is to be suitable for space rescue and maintenance missions and for use in ferrying supplies to orbiting space stations.—News item.

**'Nike Hercules' To Supplant 'Ajax'**

Nuclear capable *Nike Hercules* air defense missiles will take over the mission of *Nike Ajax* missiles in 18 metropolitan and important airbase areas in the United States beginning



**Mighty Hercules missile**

this summer, the Department of the Army has announced.

The conversion from *Ajax* to *Hercules* is part of a continuing program by the United States Army to provide a more modern and effective air defense to vital areas in the United States.

Areas affected in today's announcement are Boston-Providence, Chicago, Cleveland, Detroit, Fairchild Air

Force Base in Spokane, Seattle, Hartford-Bridgeport, Loring Air Force Base in Maine, Los Angeles, Milwaukee, New York, Niagara-Buffalo, Norfolk, Philadelphia, Pittsburgh, San Francisco, Travis Air Force Base in California, and Washington-Baltimore. A total of 68 *Nike Ajax* sites will be phased out of the defense program in these areas.

The plan will accomplish significant economies without the loss of defense effectiveness. *Hercules*, the first surface-to-air missile with a nuclear capability, has three times the range and more than twice the altitude capability of the *Ajax*, which itself is a formidable weapon. *Nike Hercules* is even swifter and more deadly. Therefore, it is now possible to provide the same level of defense using one *Hercules* battery which previously required several *Ajax* batteries.—News release.

**Throwaway Antitank Weapon**

A new four and one-half-pound throwaway antitank weapon which can be carried and fired by one man has been announced by the Army. Officially designated the XM72 rocket grenade, the new weapon is also called the LAW (Light Antitank Weapon).

Small, lightweight, and simple to operate, the XM72 costs only \$30 to produce as opposed to \$175 for the bazooka which it will replace. It can be carried over the shoulder in a three-inch by 25-inch cylindrical tube which also serves as the launcher. If desired four units can be carried in a canvas bag slung over the shoulder. The tubular carrying case has a telescopic aluminum section which is extended prior to firing. After firing the entire unit is discarded. The weapon can be fired from a standing, kneeling, or prone position.

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A solid fuel motor which burns out before the rocket leaves the tube furnishes propulsion. When the rocket emerges, several narrow magnesium fins, folded against the motor case when packed in the tube, spring into position and stabilize the rocket in flight.

The launcher is equipped with a rear peepsight and a graduated sight imprinted on a clear plastic rectangle at the mouth of the launcher tube. The firing mechanism is mounted on top of the launcher tube. Range of the weapon has not been announced but the sight is graduated up to 300 yards.

The warhead uses a powerful new Army Ordnance-developed explosive known as OCTOL. It is said to be highly effective against armored vehicles and earth and log emplacements. Teamed with the 90-mm recoilless rifle, the new rocket grenade will satisfy the infantry soldier's need for protection against enemy tanks. It is expected to be in the hands of troops by mid-1962.—News item.

### Strategic Communications System

Construction of the Strategic Army's Communications System (STARCOM) was completed with the opening of the world's largest automatic communications relay station at Fort Detrick, Maryland, recently.

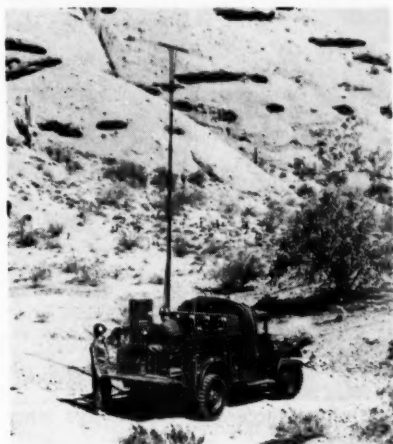
The strategic communications network permits the rapid flow of information orders and decisions to Army commanders throughout the world. Other Continental United States stations in the network include the Midwest Relay Station at Fort Leavenworth, Kansas (MR, May 1960, p 70), and the West Coast Relay Station at Davis, California. The facilities of these three stations and their supporting installations make the Army's

communications network within the US fully automatic.

The new installation at Fort Detrick is designated the East Coast Relay Station. It eventually will become a part of the Defense Communications Agency.—News release.

### Area Communications System

Radio central equipment for the United States Army's new area communications system is now being procured. The radio central, a compact and flexible unit mounted in a ¾-ton



US Army

### Mobile radio central

truck, will provide switched radio service to combat areas similar to conventional telephone service but without the use of landlines or cables. Subscriber stations mounted in command vehicles will work through the mobile central where their messages will be routed through a switchboard directly to other subscribers, or over long-distance radio relay facilities or wire circuits.

The central exploits the latest communications techniques and can transmit and receive voice, facsimile, or teletype messages.—News item.

## New 'Pershing' Fired



**New Pershing**



US Army Photos

**Earlier model**

A new version of the United States Army's *Pershing* surface-to-surface missile was recently fired at Cape Canaveral, Florida. Shown above left is the missile in its new form. At right is the earlier version which has undergone numerous successful test firings since the first one was launched in February 1960.

An additional contract for 76.9 million dollars recently awarded brings the total allotted the *Pershing* system during the current fiscal year to about 138.5 million dollars.—News item.

### Skin Communications

A radically new form of electronic communications now under development by Army researchers was recently announced by a representative of the Fort Knox Army Medical Research Laboratory in Kentucky.

The system employs low voltage current passed through electrodes attached to the skin. Mild electrical shocks, varying from a tingling sensation to pain resembling a pinprick, are felt by the receiver. As a result of training, these sensations can be

given a meaningful interpretation.

The new system can pass messages at a rate of 38 words per minute by using a simplified language consisting of 10 consonant and five vowel sounds. Training time required to learn how to use the skin stimulation system is "measured in days." Advantages ascribed to the system include the elimination of interference by external noise, compact equipment design, and complete silence in operation.—News item.

## USSR

### Balance Of Military Power

The Institute for Strategic Studies, London, England, has recently released its second pamphlet setting forth the relative military strength of the major components of the Soviet bloc and the Free World.

The new study, based on unclassified information, places the strength of the Soviet Army at approximately 135 line divisions and 40 cadre divisions, supported by about 35 artillery and antiaircraft divisions for a total of about 2,240,000 men under arms. The strength of the Soviet infantry division is estimated at 12,000 men and the armored division at about 10,500 men.—News item.

### Tighter Grip On Red Army

The Soviet Union has announced new measures for the control of the Red Army by the Communist Party. In the future, Soviet commanders will be held directly responsible for the political as well as the military training of their men. Although not definitely announced, it appears that the new assignment of responsibility may result in the elimination of political officers from units of the Soviet armed forces.—News item.

### Underseas Supply Depots

Supply depots containing oil, ammunition, and other stores required to support submarine operations are allegedly being established by the Soviet Union in the deepwater fjords of the uninhabited or sparsely inhabited islands of the North Atlantic. A new type of underwater radioactive marking buoy has been found in this area which is suitable for guiding submarine craft to the site of such depots. Observers have assumed that these bases would be used to support at-

tacks against the North Atlantic shipping lanes and perhaps against North America in the event of war. A considerable portion of the large Soviet submarine fleet is now stationed in the Barents Sea.—News item.

## AUSTRIA

### Floating Footbridge

Buoyant aluminum plates, linked together to form a floating bridge, have been successfully employed by Austrian infantrymen in crossing water obstacles. The hollow plates,



Floating aluminum bridge

components of a German-built pontoon bridge system, are approximately 10 centimeters in height. The accompanying photograph shows infantrymen moving over a partially assembled bridge linked to a dinghy in midstream.—News item.

## RED CHINA

### Missiles In Fukien

Red China is reported to be deploying large surface-to-surface missiles in Fukien province opposite Quemoy. The types of missiles involved are not definitely known, but they are assumed to be of Soviet design with ranges of less than 1,000 miles.—News item.

by Photos

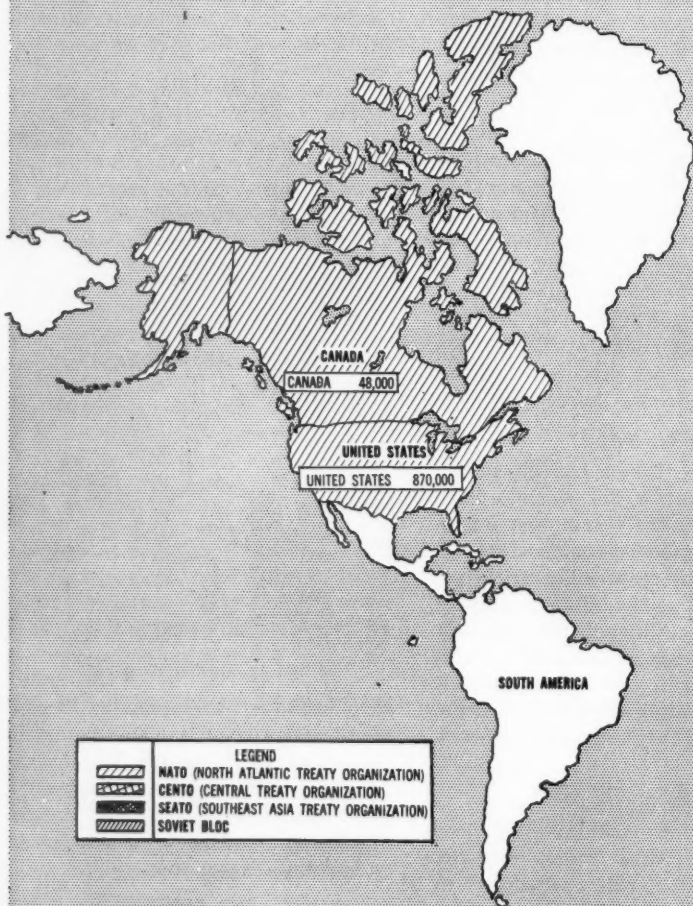
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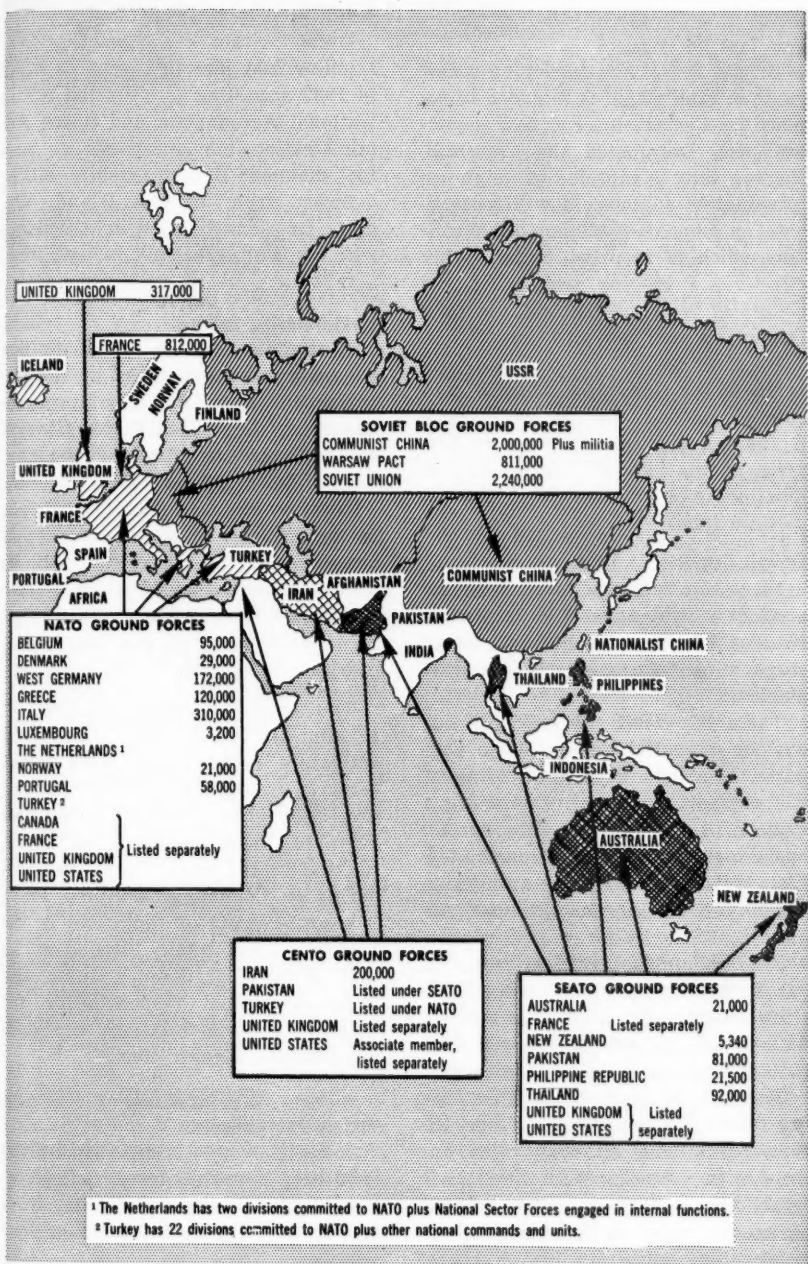
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Review

## GROUND FORCE STRENGTHS OF MAJOR MILITARY ALLIANCES





## GREAT BRITAIN

### New Tank Development

British forces are developing a new medium tank which is intended to replace the *Centurion* series now in general use. Designated the *Chieftain*, the new tank is expected to weigh approximately 45 tons. It will incorporate an improved 120-mm tank cannon which is reported to be highly effective. Prototype testing of the *Chieftain* is completed and the tank is nearing final configuration.

Britain's present 120-mm gun tank is the 65-ton *Conqueror* which is considered unwieldy for use in Europe. A 105-mm gun using the design features of the new 120-mm cannon is now in use on the *Mark 9 Centurion*.—News item.

### Aircraft Converts To Truck

Plans for a jet-powered wingless aircraft which can also be used as a road vehicle have reached the design stage at a leading British aircraft plant.

The craft, called a *Flying Pig*, has obvious potential for military purposes. It will be capable of flying at 230 miles an hour and of carrying a payload of 4,500 pounds. The normal operating altitude will be around 5,000 feet, but the craft can fly as high as 15,000 feet to clear mountainous terrain.

The *Flying Pig* will use powerful gas turbine engines, deflecting their thrust downward, to provide the lift for vertical takeoff. A less powerful turbine will drive the road wheels.

The manufacturer claims that *Flying Pigs* would be cheaper to operate than helicopters, although more expensive than trucks. With an over-all length of about 20 feet, they will be as easy to park as an average-sized truck.—News item.

## British Satellite Scheduled

Great Britain will enter the space satellite field late this year or early in 1962 according to a United States National Aeronautics and Space Administration announcement. A two-foot diameter British satellite will be launched from Wallops Island, Virginia, by a *Scout* rocket in accordance with a recent agreement.—News item.

## CENTO

### Turkish-Iranian Railroad

A credit agreement for 6.5 million dollars has been approved by the Development Loan Fund, a corporate agency of the United States Government, for construction of the first link of a Turkish-Iranian railroad. The railroad is a project agreed upon by the members of the Central Treaty Organization. The first link will be built in eastern Turkey near the Iranian border.—News item.

## INDIA

### The Sikkimese Army

The small Himalayan kingdom of Sikkim has announced that it will activate a formally organized armed force in order to provide for its own protection. The creation of the new army has been agreed to by India. Sikkim, located east of Nepal and bordering on Communist-occupied Tibet, is a protectorate of India and in the past has been totally dependent on that country for defense. India also exercises special responsibility for Sikkim's external relations and communications.—News item.

## SWITZERLAND

### Military Reorganization

A Soviet source reports that plans have been approved for a radical reorganization of the Swiss Army leading to its equipment with nuclear weapons.—News item.



# MILITARY

## BOOKS

**THE HAPHAZARD YEARS.** How America Has Gone to War. By George C. Reinhardt and William R. Kintner. 242 Pages. Doubleday & Co., Inc., Garden City, New York, 1960. \$4.50.

BY MAJ DEBOW FREED, *Inf*

The haphazard years are those between wars. The authors review major factors which have influenced military policy from the Spanish-American War to the present. Their chronology points out the repetitious decline of military power at the end of each war, followed by instigation of a peace-at-almost-any-cost psychology in the country and government, and subsequent failure to prepare for the next war. The authors' approach is candid; their product is revealing and informative.

This book is based on a study of the influence of technology on military policy. According to the authors, the military services have made greater use of advancing technology in aviation than in any other field. Even here the record is not a very savory one. Most aircraft used in World War II were designed prior to 1935 and none saw service which were not designed prior to our entry into the war.

The most soul-searching portions of the book concern the weapons and equipment which we were capable of producing but did not. These weapons would have given us a definite advantage over the enemy in many respects.

*The Haphazard Years* is highly recommended to readers interested in national military policy.

**KOREA AND THE FALL OF MACARTHUR.** By Trumbull Higgins. 229 Pages. Oxford University Press, New York, 1960. \$5.00.

BY MAJ EDWIN J. MCCARREN, *Armor*  
*Had the Americans 'voluntarily halted at the old demarcation line they would have been able to claim that they were the victors and had been acknowledged as such . . . all the world over.'*—Raymond Aron

*If that is the concept of a continued and indefinite campaign in Korea, with no definite purpose of stopping it until the enemy gets tired or you yield to his terms, I think that introduces into the military sphere a political control such as I have never known in my life or ever studied. . . . I believe . . . if you hit soft, if you practice appeasement in the use of force, you are doomed to disaster. . . .*—General Douglas MacArthur

Above are examples of some of the hard-hitting quotes which Mr. Higgins has tied together with amazing continuity and clarity. This is a collection of attitudes, actions, statements, and purposes of the leading political, military, and allied figures of the era.

The author has done an exhaustive and valuable job of research. He offers no conclusions nor does he attempt to sell either side of this controversial issue. He does offer the man who is truly interested in modern war 34 pages of bibliography which will provide food for the appetite this book is certain to whet. It is well-organized, well-written, and well-documented.

**THE EDGE OF WAR.** By James David Atkinson. Foreword by Admiral Arleigh A. Burke. 318 Pages. Henry Regnery Co., Chicago, Ill., 1960. \$6.00.

By Lt COL FRANCIS J. KELLY, *Armor*

The term "unconventional warfare" unfortunately has come to mean many things to many people. The total subject area of unconventional warfare has been plagued by imprecise, incomplete, and, at times, parochial definitions of the term.

Dr. Atkinson has taken a total view of the subject and has produced what should become the standard work on unconventional warfare.

Dr. Atkinson by nature, by vocation, and by choice has an immediate and intense dedication to America, her ideals, and her continued existence. Thus he sees communism and its methods of practice as representing an immense and deadly threat to all democracies and democratic processes. In his own way, he is as dedicated to stamping out the Marxist-Leninist threat as the Communists are in extending their way of life. To this dedication he brings the clinical surety of the academician, the lucid dissecting ability of the historian, and the pragmatism of a practicing military reservist.

The central thesis of this book is not so much a recital of the evils of communism, but rather a graphic portrayal of the methods by which the Soviets practice their faith, that is, by unconventional warfare. The author starts from the premise that "the Bolshevik Revolution constituted the most important event in recorded history since the fall of the Roman Empire."

He further defines unconventional warfare as including propaganda, economic warfare, sabotage, espionage,

subversion, strikes, civil disturbances, terrorism, political warfare, and guerrilla warfare.

Each division of this definition is deftly and clearly distinguished from each other. Accompanying this discussion are appropriate and impeccably documented case histories.

There are any number of literary highlights interspersed throughout the book, particularly the fine analysis of the American national character as related to warfare.

The general structure of the book compares the American and Communist approaches to war, the evolution of conventional methods toward unconventional warfare, the American experience with unconventional warfare, and the ultimate fusion of war and peace.

Dr. Atkinson makes logical and perceptive differences between the forms of warfare. The section dealing with the "peaceful coexistence" theme alone makes the book worth reading. Again, the section on Lenin's influence on the Communist approach to war is truly excellent, if indeed not the highlight of the book.

The author has done the military profession a true service by scraping away all the murky clouds behind which the Communists operate. He spreads out the entire tapestry of Communist ideological planning for all to see and understand. There is a subtle irony in the fact that the author uses a favorite tool of the Communists—dialectics—to expose the Kremlin machinations.

Finally, Dr. Atkinson produces a blueprint for action by which this country can progress in strength and courage and work toward victory. This book should be read by every thinking American.

**EDUCATION AND MILITARY LEADERSHIP—**  
**A Study of the ROTC.** By Gene M. Lyons and  
John W. Masland with a foreword by John  
Sloan Dickey. 283 Pages. Princeton Univer-  
sity Press, Princeton, N. J., 1959. \$5.00.

This volume is a critical survey of the Reserve Officers' Training Corps program as it has been conducted in the past, and contains a series of proposals for its future modification. A wealth of statistical data is presented which is of value to individuals now involved in officer procurement planning. The importance of the subject to the future of the Military Establishment of the United States enhances the value of the study.

**THE SURVIVAL BOOK.** By Dr. Paul H. Nesbitt, Alonzo W. Pond, and William H. Allen. 338 Pages. D. Van Nostrand Co., Inc., Princeton, N. J., 1959. \$7.50.

*The Survival Book* is a comprehensive manual of survival under various climatic conditions written for adventurers who may find themselves dependent upon the resources of their environment for the necessities of life. Contents are adaptable to military training and civil defense planning.

**WAKE OF THE WAHOO.** By Forest J. Sterling. With a foreword by Charles A. Lockwood, Vice Admiral, United States Navy, Retired. 210 Pages. Chilton Co., Philadelphia, Pa., 1960. \$3.95.

Written in the carefree style of a novel, *Wake of the Wahoo* is a straightforward account of life of the submariner in World War II. This readable and well-written story presents an uninhibited impression of the fatalistic valor of the men who fought the war under the seas. It is recommended for recreational reading.

**THEY WHO FOUGHT HERE. A Pictorial History of the Soldier 1861-1865.** By Bell Irvin Wiley and Hirst D. Milhollen. 273 Pages. The Macmillan Co., New York. \$10.00.

By LT COL JOSEPH E. O'LEARY, *Inf*

This work considers facets of the war which have been little noted by the historian, but long remembered by the individuals concerned. The material covered has been gleaned primarily from letters and personal diaries of Union and Confederate soldiers. It is a pictorial expression of how the soldier acclimated himself to and reacted toward all phases of service life.

Included are descriptions and pictures of how he joined up, what he ate, what he wore, what he fought with, the diversions available to him, and how he spent his leisure time. Crime and punishment as well as morals and religion are described in detail.

**AIRCRAFT AND MISSILES (Second Edition).** By D. M. Desoutter. 213 Pages. John De Graff, Inc., New York, 1959. \$7.50.

Air as it affects objects in motion, characteristics of air vehicles in flight, and the phenomena of shock waves and supersonic speeds are among the subjects covered in this volume. A discussion of engines, airframe structure, vertical lift principles, missiles and rockets, and auxiliary equipment used with air vehicles are treated in a brief but comprehensive manner.

The history of human flight and an account of current research and development conclude the presentation.

Large format and good illustrations contribute to the effectiveness of this book in presenting the answer to what aircraft and missiles are, what they do, and how they work.

**FROM LENIN TO KHRUSHCHEV.** The History of World Communism. By Hugh Seton-Watson. 432 Pages. Frederick A. Praeger, Inc., New York, 1960. \$6.00.

By MAJ ROBERT C. BURGESS, *Arty*

Mr. Seton-Watson, a professor of Russian history at the University of London, authored a well-received work in 1953 entitled *From Lenin to Malenkov*. His present book is a revised edition containing two additional chapters which carry the earlier analysis through to the present.

*From Lenin to Khrushchev* is an extensive comparative analysis of Communist movements on a world scale. Readers interested in understanding the "whole phenomenon of communism" will have to turn elsewhere to study Marxist-Leninist theory and communism "from the inside." The author's subject here is "the impact of the Communist movement on the outside world, and the outside world on it."

As background for his central thesis, Seton-Watson discusses Soviet internal affairs and those of established Communist regimes of Eastern Europe and China. The bulk of the work, however, is devoted to comparisons of the efforts of Communists to seize power in other lands. Communist techniques, successful or unsuccessful, are analyzed in relation to the varying existing social and political structures within which they are carried.

The additional material in this new edition deals in considerable detail with the 1956 Hungarian revolution; recent Soviet internal developments; expanding Communist activity in the Middle East, Latin America, and Africa; and with accelerating totalitarianism in China. These new chapters bring the previous work up to date and follow the original pattern

of comparative historical analysis.

Seton-Watson's approach serves to broaden the scope of this book beyond that of writings dealing with Soviet communism or of the more sensational works by ex-Communists describing operational procedures of specific movements. This volume is an excellent reference for those interested in the "why" as well as the "how" of Communist successes and failures throughout the world.

**STAFF IN ORGANIZATION.** By Ernest Dale and Lyndall F. Urwick. 241 Pages. McGraw-Hill Book Co., Inc., New York, 1960. \$6.00.

The authors, well-known authorities in the field of management, have written this book to present a solution to one of today's most pressing business problems—how to reduce the ever-increasing load being placed on top management. Executive burdens are growing because businesses are becoming larger and more complex.

The answer to this problem, the authors feel, lies in a proper business adaptation of the military practice of coordinating effort through use of a general staff. Although it has long borrowed the terms "staff" and "line" from the military, the writers believe that business "has shown insufficient insight into the realities those terms are used to describe."

While working hard at selling their argument, the writers are also quick to point out the dangers of indiscriminate adoption of general staff principles. They illustrate with case studies some unsuccessful examples involving lack of clear definition of duties and relationships; improper selection of staff members; failure to distinguish between general, special, and personal staffs; and the use of the staff as a "dumping ground for problem children."

**THE THUNDER OF THE GUNS. A Century of Battleships.** By Captain Donald Macintyre. 352 Pages. W. W. Norton & Co., Inc., New York, 1960. \$3.95.

By CDR CHARLES K. SCHMIDT, USN

For almost a hundred years the great sea fortresses armored against all but their own kind ruled the seas. Invested in these ponderous and majestic battleships was a large share of national pride and national resources.

Captain Macintyre has spun a web of enchanting sea stories which skillfully takes the reader from the beginnings of steam and steel in the navies of the world to the era of aviation fuel and nuclear power. He has admirably told of this age, with particular emphasis between the Civil War years and the end of World War II.

This book is recommended for both the lay and military reader and as an addition to personal libraries. It is a wonderful nostalgic link between the jet-minded youngster of today and the majesty of "A Century of Battleships."

**NUCLEAR FLIGHT. The United States Air Force Programs for Atomic Jets, Missiles, and Rockets.** Edited by Lieutenant Colonel Kenneth F. Gantz, United States Air Force. 216 Pages. Duell, Sloan & Pearce, Inc., New York. \$4.00.

By LT COL LEO J. HAGERTY, USAF

This is the commercial edition of a special issue of the *Air University Quarterly Review* published in February 1960.

These 22 reports contain a brief of policy and program direction and a discussion of specific goals in developing nuclear power for aircraft, missiles, rockets, and auxiliary power units. Also presented is the current

status and progress of the development program.

As an unofficial source of information, it is the most complete background and nontechnical reference book yet issued on the subject.

**CLIMAX AT MIDWAY.** By Thaddeus V. Tuleja. 248 Pages. W. W. Norton & Co., Inc., New York. \$3.95.

By CAPT JAMES R. THOMSON, USN

*Climax at Midway* is an exciting historical narrative of the battle that turned the tide in the Pacific during World War II. The author presents his story with sufficient detail—based upon his recent reanalysis of all the material available plus interviews and letters from the major personalities involved—to make his work authoritative.

Beginning with a short résumé of the events and strategy that led to the attack against our forward outpost in the central Pacific, the author sets forth the grand strategy as developed by the Japanese and the desperate but bold counteractions planned by the United States. Numerically and potentially, the odds in favor of a successful occupation of Midway were overwhelming.

All students of military history should be acquainted with the Battle of Midway which marked the important turning point in the fortunes of war between the Americans and the Japanese in the Pacific. This easily and quickly read book fills the need for any but the most exhaustive and detailed study of the action. For the nonnaval man, the book is equally valuable for the sense of intimacy he will receive with the people and forces involved in the war at sea, and with some of the factors which set naval warfare apart.

**THE ENIGMA OF MENACE.** By Sir Victor Goddard. 110 Pages. Stevens & Sons, Ltd., London, England. \$2.00.

BY LT COL CLEO S. FREED, *Armor*

Peace can be attained through strength—weaknesses lead to war. This theme is evident throughout this book, yet the author avers that:

*The book is not about warfare: it is not concerned with military strategy and tactics, nor the conduct of war . . . the book is really about order and patience and peace.*

An outstanding example of philosophical reflection applied to contemporary problems, Sir Victor Goddard's study covers the field of international tensions, their causes, cures, and influencing factors in a unique and interesting fashion.

The Free World's professional soldiers recognize that their first objective is to prevent war. Failing in this, their task is to win war. Since our primary mission is to keep the peace, it is essential to understand peace.

Conversely, the author discloses, an understanding of peace is dependent upon a knowledge of war, a knowledge of people, and an appreciation of the moral factors on individual and national conduct. *The Enigma of Menace* contributes to this understanding.

**SOUL OF THE LION.** A Biography of General Joshua L. Chamberlain. By Willard M. Wallace. 357 Pages. Thomas Nelson & Sons, New York, 1960. \$5.00.

This is an intimate story of the Civil War career of General Joshua L. Chamberlain, born soldier, trained missionary, and dedicated Union commander who made his presence felt at Gettysburg and Appomattox. Chamberlain's virtues and human weaknesses are portrayed with skill and restraint to afford the reader an ap-

preciation of his character and personality.

Chamberlain, who was wounded six times in combat, was credited by one of his dying comrades as having "the soul of the lion and the heart of the woman."

Although not one of the senior Civil War commanders, the subject participated in many of the significant and colorful incidents of the war. This account provides a close look at a man who represents the vital second echelon of leadership which plays a critical role in the outcome of battle.

### THE CRETAN DRAMA.

The Life and Memoirs of Prince George of Greece, High Commissioner in Crete (1898-1906). Edited by A. A. Pallis. 432 Pages. Robert Speller & Sons, Inc., New York, 1959. \$7.50.

### THE EFFECTS OF LEADERSHIP.

By Hanan C. Selvin. 269 Pages. The Free Press of Glencoe, Ill., 1960. \$5.00.

### SOVIET INFLUENCE IN LATIN AMERICA.

The Role of Economic Relations. By Robert Loring Allen. 108 Pages. Public Affairs Press, Washington, D. C., 1959. \$3.25.

### EVERY SERVICEMAN'S LAWYER.

By Earl Snyder. 341 Pages. Military Service Division, The Stackpole Co., Harrisburg, Pa., 1960. \$3.50.

### TEMPERAMENT AND CHARACTER OF THE ARABS.

By Sania Hamady, Ph. D. 285 Pages. Twayne Publishers, Inc., New York, 1960. \$5.00.

### ALGERIA BEFORE THE UNITED NATIONS.

By Mohamed Alwan. Foreword by W. Wendell Cleland, Ph. D. 121 Pages. Robert Speller & Sons, Inc., New York, 1959. \$3.50.

## READER SURVEY:

In November a seven-page questionnaire was sent to a representative sample of all MILITARY REVIEW readers. Questions were designed to gain information on reader preferences regarding material published and manner of presentation.

Response to this reader survey has been very gratifying. A high percentage of those receiving the questionnaire responded; many offered useful comments and suggestions. We wish to thank all who have participated in the survey.

In the near future we shall publish a summary and analysis of the results. The knowledge gained will be applied in our continuous program to attain the utmost professional value for the military reader.

## NEXT MONTH:

Mr. Frank R. Barnett outlines a down-to-earth program showing how the Army can assist in the conduct of cold war, based partially on lessons learned in hot war.

Lieutenant Colonel George E. Handley, Jr., clears up some misconceptions about the organization and employment of the Division Aviation Company.

Mr. Richard M. Ogorkiewicz reviews armor concepts and trends, with emphasis on materiel.

